

# THE IRON AGE

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## Conveyors to Handle Forgings and Scrap

Flashings from Trimming Presses Carried to Tote Box at  
One End of Group, While Forgings Are Sorted  
from Belt at Other End

**A** NEW application of conveyor equipment has been made for handling flashings and small automobile forgings from cold trimming presses at the forge plant of the Chevrolet Motor Co., Detroit, and the handling system recently placed in operation for this work is resulting in a marked saving in the hand labor formerly required.

The plant is equipped with 24 trimming presses in two lines, between which the conveyors operate, the presses having been rearranged so that the two rows are as close together as the conveyors permit. There

are two horizontal conveyors, one above the other, that operate in opposite directions. These are motor driven and are the pan type, 125 ft. long, 2 ft. wide and having 4 in. flights.

The upper conveyor carries the flashings beyond the end of the rows of presses, where the conveyor turns up a slight incline and dumps the scrap into a tote box. As soon as a box is filled it is trucked away and an empty box is put in its place. The forgings, weighing from  $\frac{1}{4}$  lb. to 2 lb., after being trimmed are thrown into the lower conveyor, which carries them to the op-



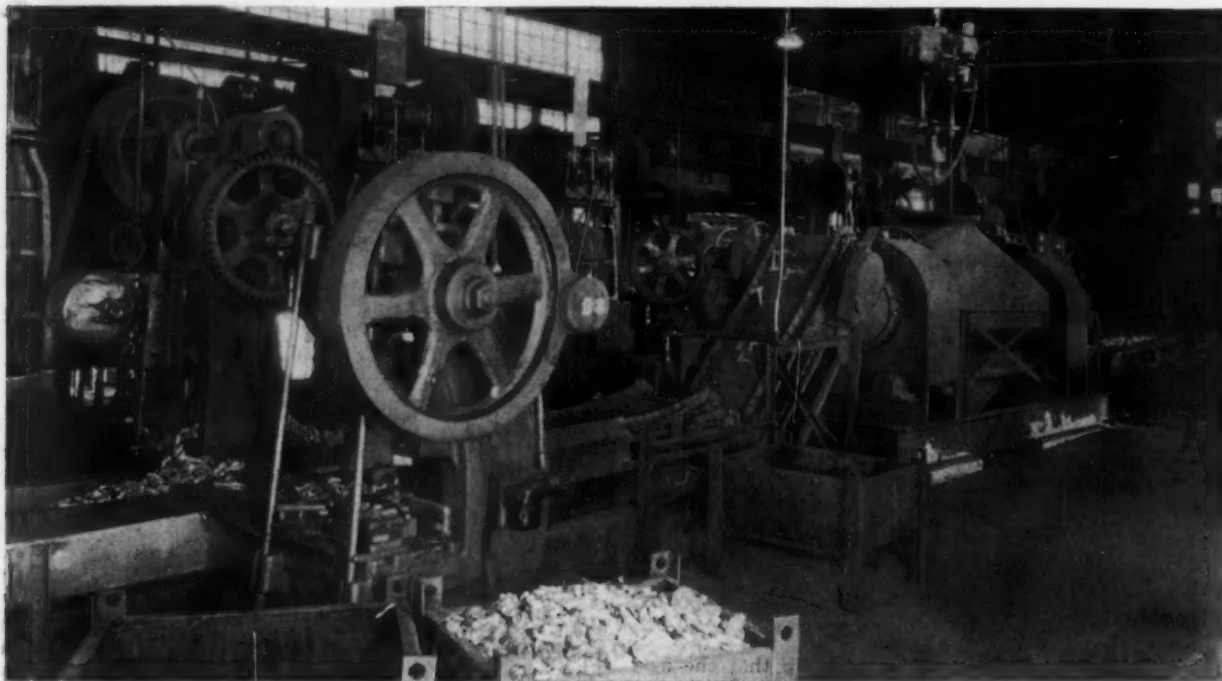
Forgings Are Delivered From the Continuous Tumbling Mill Onto a Conveyor Belt and There Are Sorted While Moving Along This Belt and Placed in Tote Boxes Made With Pipe Bottoms

posite end of the line of presses, where they are sorted into tote boxes.

After passing the end of the two lines of presses the forging conveyor turns upward 8 ft. at an angle of 45 deg. and delivers the parts into a W. W. Sly continuous tumbling mill 19 ft. long and 26 in. interior

ings are sorted while moving along the table and placed in tote boxes, one of which is provided for each type of forging.

Before the present equipment was installed the forgings were cleaned in several standard drum type tumbling barrels operated by three men. With the elimi-



Both Conveyors Appear Here, With the Lower Conveyor Emerging and Elevating the Forgings into the Continuous Tumbling Mill

(At Right)—Flashings From the Trimming Presses Are Thrown on the Conveyor, Which Delivers Them into the Tote Box in the Foreground. Beneath this conveyor is another conveyor moving in the opposite direction, which carries the trimmed forgings to a continuous tumbling mill



diameter. This has a capacity of 5 tons per hour and it takes a forging approximately 45 min. to go through the mill.

After the forgings are cleaned the tumbling mill dumps them onto a conveyor belt 12 ft. long and 18 in. wide that operates over a table 36 in. wide. The forg-

nation of the labor that was heretofore required in handling the forgings from the presses to the tumbling barrels, and in moving the scrap and the saving of labor in operating the tumbling equipment, there has been a net saving of six men by the installation of the conveyors and continuous tumbling mill.



# Steel Corporation Responds in Basing Case

Sweeping Denials of Allegations Made Before the Federal Trade Commission—Testimony of Witnesses Analyzed—Probable That Cease and Desist Order Will Be Issued

THE United States Steel Corporation on Monday filed its brief for itself and its subsidiaries as respondents, in the case of the Pittsburgh basing point complaint before the Federal Trade Commission, Washington. The brief is signed by the counsel, Richard V. Lindabury, Cordenio A. Severance, William W. Corlett, J. Edward Ashmead, and Arthur L. Mulling. The brief is divided into nine chapters, or points, with two supplements containing in all 173 pages and two appendices, one of 155 pages and the other of 69 pages.

It is expected that J. W. Hunt, the new member of the commission, will sit when the arguments begin June 23. As he is a former member of the Iowa Farm Bureau, it is considered probable that he will vote for a cease and desist order. In that event, judging from the way the other members have voted in the past, there will be a three to two vote for such an order, and it will be issued. The Steel Corporation would then appeal to the courts, where the final decision will be made.

As the first point, it is asserted that considering the testimony introduced by the commission in the light most favorable to the commission's contentions the evidence is insufficient to establish a violation of Section 2 of the Clayton act. It is declared that the evidence fails to support the finding that competition between consumers has been substantially lessened as a result of the alleged Pittsburgh plus practice and that there was no evidence that the prices paid other producers to the extent they were similar to respondents' prices were by agreement, combination or understanding between respondents and such other producers. The opinion is expressed that the probable effect of the elimination of the Pittsburgh plus would not be to increase competition. It is further asserted that the evidence fails to support the finding that competition between the producers of the various rolled steel products has been substantially lessened as a result of the alleged Pittsburgh practice.

## Fails to Show Violation

Under point 2 it is asserted that the testimony introduced on behalf of the commission fails to show any violation of Section 5 of the Federal Trade Commission act, and that it fails to show any participation by any one or more of the respondents in any pools, combinations or price understandings.

Under point 3 the term "Pittsburgh base" is defined as meaning simply the use of Pittsburgh as a basing point, or the naming or fixing of a price f.o.b. Pittsburgh. The brief adds "considered as a method of quotation, the use of Pittsburgh as a basing point has no necessary effect in establishing a uniform delivered price for steel, either in Pittsburgh or at any point out of Pittsburgh. The Pittsburgh base or the price at Pittsburgh varies with the market, so that the same producer or several producers of steel quote different f.o.b. Pittsburgh prices for delivery at various points, and when such different f.o.b. Pittsburgh prices are quoted, it results in different delivered prices as between different producers. A striking example of the variation in prices quoted by various steel producers, all on the f.o.b. Pittsburgh basis, is found in the prices which prevailed from the last part of 1919 until the last quarter of 1920. During that period the f.o.b. Pittsburgh prices of various steel producers varied to

such an extent that the delivered prices of sales made by the Illinois Steel Co., American Sheet & Tin Plate Co. and American Steel & Wire Co. were lower than the f.o.b. Pittsburgh prices of certain other producers for delivery at Pittsburgh."

## Natural Market Prices

Under point 4 it is asserted that the prices realized by respondents for the products manufactured in their Western plants have been the natural market prices at points of consumption and have in no way been affected by any alleged artificial system of pricing or selling.

Under point 5 it is asserted that the prices charged by the Tennessee Coal, Iron & Railroad Co. for bars, shapes and plates represent at all times a voluntary price concession on the part of the Tennessee Coal, Iron & Railroad Co. to its customers. The lack of competition in the Birmingham district is considered and it is stated that competitors obtain higher prices than Tennessee coal, Iron & Railroad Co. except in periods of slack demand. It is pointed out that the company made a voluntary concession in price to Southern consumers.

Under point 6 it is contended that the prices obtained by the Western plants of respondents for material manufactured at those plants were obtained as a result of the natural advantage of location of such plants and not because of any artificial system of pricing or selling. It is declared that the Western competitors of the Illinois Steel Co., the American Steel & Wire Co. and other companies of the Steel Corporation have always lacked and now lack the capacity to supply demand in Western territory.

## Development in Chicago

Under point 7 it is asserted that the development of the production of steel in the Chicago district has been much more rapid than at Pittsburgh, due to the natural advantage of location of such mills. The development of the individual producers in the Western district is considered at length. For example, it is stated that the development of the Inland Steel Co., the principal Western competitor of the Illinois Steel Co., is not only impressive, but most important in relation to the fundamental questions in this case. Detailed facts of this great growth are given and the development of other competing companies is considered.

Under point 8 it is declared that the expert testimony introduced on behalf of the commission, considered in its light most favorable to the commission's contentions, does not even tend to prove any violation on the part of the respondents or any of them of Section 2 of the Clayton act or Section 5 of the Federal Trade Commission act. It is declared that the assumptions on which the experts' testimony was based were erroneous and that the theory advanced by the experts has only an academic relation to competition as is understood by business men and the courts.

Under point 9 it is stated that the sale of steel by the respondents and the prices realized therefor are not based on any artificial system but are determined by the same factors which govern the sale prices of other conditions. It is claimed that the factors which determine the prices prevailing for steel in different localities are the same as those which determine the prices for other commodities and the scrap market is

cited as an ideal illustration. Another example is found in the purchase of spelter or zinc.

#### Erroneous Premises Alleged

In the supplement of the brief it is asserted that the entire argument contained in the commission's brief recently filed, rests upon two erroneous premises as follows:

First—That a consumer of steel solely by reason of his proximity to a mill producing steel has a natural advantage which the producing mill is legally obligated to recognize in fixing the price.

Second—that the respondents are restricted in the independent adoption of any method of quoting and selling the steel they purchase because other producers follow that method.

Finally, the brief declares, the commission's brief

is in error when it states that Judge Gary testified that the prices obtained by the Western plants of respondents are not the result of the law of supply and demand, and that the authorities cited in the commission's brief are in no respect applicable to the points in the present case.

In Appendix I an analysis is made of the evidence introduced by the commission by means of many witnesses. It is declared that the effect of the alleged discrimination in prices does not place any universal or even general handicap upon the Western and Southern consumers of steel resulting in a substantial lessening of their competition.

In Appendix II many exceptions are taken to findings of fact made by the examiner on the ground that the findings are not supported by the evidence, or that the findings are irrelevant.

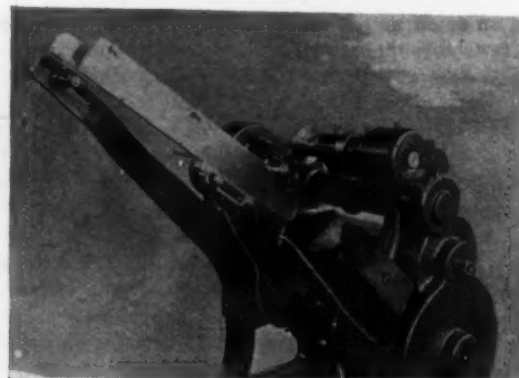
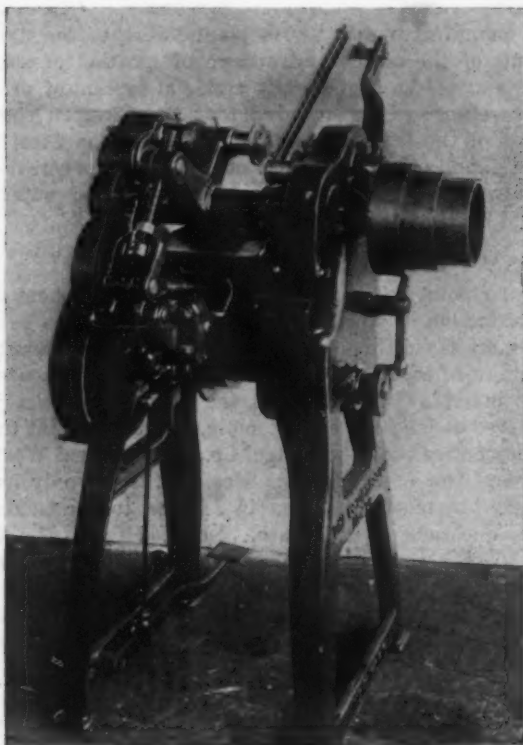
#### Trimming Attachment Added to Thread-Rolling Machine

To broaden the scope of its thread-rolling machine, thereby eliminating a subsequent operation, the V & O Press Co., Hudson, N. Y., has added to this machine a trimming attachment which will trim off ragged edges from threaded shells, such as electric lamp sockets, bottle caps, and many similar articles.

While redesigning the machine to include this new feature, other improvements have been made. The entire machine is heavier and the main bearings are now all incorporated in the body casting, which was not the case in the older model, in which some of the

die which presses the work between itself and the chuck on the machine spindle. The toggle operation is intended to maintain uniform pressure on all pieces. Adjustment is provided on the cam which operates the rocker arm toggle, so that the dwell may be varied depending on the piece. The shaft or auxiliary spindle carrying the upper chuck is adjustable longitudinally to permit of matching threads between the two dies. An automatic knockout is furnished with the machine. All the operator has to do is to keep the chute filled and operate the clutch treadle, it is claimed. The clutch may be locked for continuous operation, if desired.

The trimming attachment is operated on an auxili-



An Attachment for Trimming the Ragged Edges From Shells Is a New Feature of the Thread Rolling Machine Shown At Left and Above. The bearing mounting has been changed and the machine made heavier

bearings were secured by cap screws. The bearings are bronze lined.

The essential features of the machine are a main spindle, which carries a male thread rolling die or chuck. This spindle revolves in fixed position. Before it, on the operator's side, is placed a magazine which has a peculiar motion controlled by suitable cams placed below the machine body. The cam action serves to lift the lower end of the chute to loading position opposite the chuck, when another cam action moves it transversely, to place the shell on the die. Immediately following this placement of the work, another cam, actuating a toggle and bell-crank rocker arm, mounted on trunnions, throws down the upper chuck or rolling

ary shaft by a cam placed on the main cam shaft. By use of suitable dies for the purpose, shells may be not only threaded and trimmed, but may be knurled, rolled to hexagon or other forms, or the edge wired. When trimming is performed, the attachment is so placed that trimmings and work are separated as they are delivered from the machine.

Plans have been made by the Baltimore Safety Council, 22 Light Street, Baltimore, Paul F. Stricker, director, to launch a three-year safety campaign in Baltimore industries. Action was taken at a luncheon of the Industrial Committee and representatives from the plants on June 4. Safety groups will be formed in each plant and one man appointed to supervise and suggest safety measures.

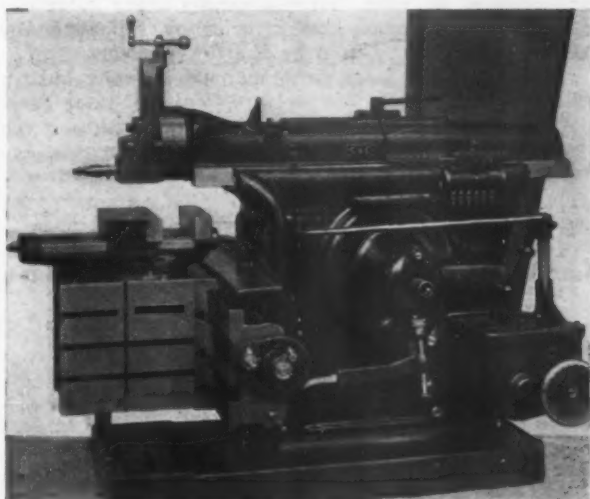
Fire at the plant of the Alliance Machine Co., Alliance, Ohio, June 6, largely destroyed the company's office building. Drawings in process were destroyed but it is stated that there will be no interruption of plant operation as a result of the fire. Damage is estimated at \$15,000.



### Improvements Added to G & E Shapers

A multiple gravity oiling system for lubricating automatically all of the main internal bearings is one of several features recently added to the line of shapers offered by Gould & Eberhardt, Newark, N. J. The basic design and general lines of the machines, however, have not been changed.

Although simple, the gravity oiling system is considered adequate, as the shafts in this type of machine do not run at very high speeds and, therefore, require only a moderate amount of oil. The lubricant may be



Incorporation of a Multiple Gravity Oiling System, Relocation of Gear Shift Lever and Other Improvements Have Been Added

turned on or off as the machine may require, depending upon how hard the shaper is being run.

Other changes include moving the lever for shifting the gears in the speed gear case from the bottom to a more convenient location at the top of the case, where it may be reached conveniently. There is also an index plate arranged so that the operator can read easily the strokes per minute at which the machine is running. The starting and stopping lever in the machine has been made longer for the convenience of the operator, and a simple and efficient lock has been provided for the tool head slide. The handle for clamping the ram adjusting nut is now made of a drop forging. The movable vise jaw has a solid top which is accurately machined and provides more surface than formerly for surface pointers when squaring up work.

The guard over the cross rail is of sheet metal and provision is made to prevent the chips from getting under the guard and in back of the slide. Means are provided for oiling the cross slide and oil wipers are attached on all of the cross rail bearings, to keep these free from dirt and prevent chips from getting under.

Other minor improvements are also being made.

### Automobile Production Slackens

With a total of 301,200 cars and trucks turned out in May, United States automobile production has recorded the fifteenth successive 300,000-car month. But there is a distinct falling off from the 373,139 vehicles reported for April and the 382,456 for March. For the first five months of the year the production reported by *Automotive Industries* was 1,749,543 cars and trucks, compared with 1,651,518 in the first five months of 1923. For the twelve months ended May 31, the total is given as 4,210,517, against 3,375,670 in the twelve months ended May 31 last year.

Betterments at the Cambria plant, Johnstown, Pa., figure to a considerable extent in the proceeds of the recent \$30,000,000 bond issue of the Bethlehem Steel Co. Among the improvements which are likely to be started at an early date will be a new power plant and the electrification of three of the bar mills at the Gautier plant.

### Full Revolving Crane for Use on Automobile Trucks

A full revolving crane for mounting on the chassis of an automobile truck as shown in the accompanying illustration has been placed on the market by the Orton & Steinbrenner Co., 608 South Dearborn Street, Chicago.

The machine is known as the Dependable truck crane and is intended to combine the advantages of a crane with the speed of a motor truck. The crane may be mounted on any 5-ton truck having a distance of 8 ft. between the back of the driver's seat and the rear axle, the machine being more evenly balanced however if the distance is 8 ft. 6 in.

A feature is the removable counterweight compartment. As the laws of some States do not permit loads in excess of 10 tons to traverse the roads, the ballast necessary to maintain the balance may be dropped out by opening the bottom of the compartment. Sand is usually the material employed for ballast.

All parts of the crane are accessible and may be removed and replaced conveniently. The operating levers are banked on one side at the front, and the operator has an unobstructed view of the work. The general arrangement of the drums, gears and shafts is similar to that in the company's locomotive cranes, previously described. Bearings are equipped with removable bronze bushings, gears are of steel and



The Crane Is of Full-Revolution Type and May Be Mounted On Chassis of Any 5-Ton Truck

the spur gears in the main train have cut teeth. The drums and sheaves are of large diameter. The frictions for operating the hoisting drums and swinging the boom are bronze cone with outside band brakes. Lubrication is by means of the Alemite pressure system.

The turntable is a steel casting and revolves on four large steel rollers. The A-frame supporting the boom is of structural steel. Power is furnished by a heavy-duty Hercules four-cylinder 37-hp. motor. Double drums are provided on the main drum shaft.

The crane may be equipped with a  $\frac{1}{2}$  or  $\frac{3}{4}$  yd. clam shell bucket. It may be used for handling coal, coke, sand and similar material. With a generating set a 36-in. magnet may be used to handle scrap iron, pig iron or castings, and equipped with hook and sling the machine may be used in erecting work.

## EYE ACCIDENTS PREVENTABLE

### Report of Two-Year Investigation of Eye Hazards Discussed at Safety Meeting

An investigation into the eye hazards in industrial occupations has been conducted during the last two years by the National Committee for the Prevention of Blindness, 130 East Twenty-second Street, New York. A summary of the more important findings and an outline of the ways and means of putting the recommendations which grew out of these findings into effect were presented by Lewis H. Carris, managing director of the National Committee, at a meeting held under the joint auspices of the American Society of Safety Engineers and the Brooklyn Safety Council, held in Brooklyn, N. Y., May 12.

The full report which comprises more than 250 printed pages and fifty illustrations, will be issued within a few weeks. "Eye accidents surpass all other industrial hazards in seriousness, with the single exception of fatal accidents, whether measured from the humanitarian, the cost sheet, or the production standpoint," said Mr. Carris. "Approximately 200,000 eye accidents occur in industry annually, and it is estimated that several thousand eyes are permanently blinded as a result. There is hardly an industrial occupation in America which does not add annually to the steadily increasing total of the industrial blind and near-blind. Of a total of 100,000 totally blind persons in the United States, 15,000, or nearly one-seventh, became so through industrial accidents. A still greater number suffer from loss of one eye, or impaired vision, caused by accidents while at work.

"Even from the purely economic point of view eye accidents cost more in compensation, in medical treatment, and in loss of productive efficiency than any other form of non-fatal accident.

"Besides the direct cost of compensation and medical treatment for eye injuries, two other principal factors contribute to the monetary cost of industrial eye hazards. They are the indirect cost resulting from spoilage of raw materials and finished products, and the natural slowing up of the individual's work and of the whole industrial machine resulting from defective vision, from poor lighting, and from accidents caused wholly or partially by poor vision. These costs aggregate many millions of dollars a year.

#### Three Chief Sources of Eye Injury

"The chief eye hazards in industry are briefly, first, the accident hazards, such as flying chips of metal, minerals and wood; splashing liquids such as molten metals, acids, and other injurious chemicals; and explosions of all varieties. Second, there are the hazards of infections and eye diseases which arise from neglect of eye injuries, incompetent first aid treatment, contact with carriers of contagious disease, and exposure to excessive radiated heat. Finally there is eyestrain resulting from improper or inadequate lighting, improper vocational placement, and from ignorance of or disregard for the existence of defective vision.

"The solution of the eye hazard problem depends principally upon three forces: legislation, education, and organized prevention activities in industry. There must first of all be laws requiring the reporting of accidents, specifying safeguards and providing for the compensation of injured workers.

"But education of workmen, foremen, superintendents, plant managers, and of owners themselves is just as important, because of the fact that many accidents result from causes that cannot be guarded against by any mechanical means. Legislation cannot keep a workman from shoving his goggles up to his forehead when he is not being watched if that workman has not been convinced that he should wear goggles every minute of the time during which he is engaged in work that presents a serious eye hazard. Only education can do that.

"Given ideal safety legislation and thorough-going safety education, there is still the need for definite

and carefully organized accident prevention activities within the individual plant. Mechanical guards must be installed and maintained in working order. There must be frequent inspection of plant conditions and operating methods. Intelligent supervision is necessary. Illustrated posters, warning signs, and other forms of safety literature are needed."

Where such a program has been carried out, said Mr. Carris, eye accidents have been cut to almost nothing, and production has been increased. Comparatively few industrial organizations have yet developed anything like the full eye accident prevention possibilities, he said, but potentially every industrial concern can eliminate eye injuries by following the methods successfully used by the few pioneers.

Harry Schultz, assistant manager of the bureau of safety, sanitation and welfare, United States Steel Corporation, also addressed the meeting, outlining the results achieved by the corporation in eliminating eye hazards, and the methods which were employed.

### Large Percentage of Industrial Workers Have Defective Vision

Industry is neglecting the eyes of the workers, it is asserted by the Eye Sight Conservation Council of America. Summarizing the results of eye tests of a group of over 200,000 employees, said to be the largest yet studied in the field of eye conservation, the council reports that the average proportion of defective vision is 44.3 per cent.

These disclosures, it was stated, "establish an accurate incidence of the proportion of defective vision among the 42,000,000 gainfully employed persons in the United States."

Comparing the findings of the survey with those of the Hoover waste committee of the American Engineering Council, which revealed that out of more than 10,000 employees 66 per cent had defective eyes, the Eye Sight Conservation Council found that in one group of more than 12,000 the average of defective vision was 72 per cent. The Hoover conclusions are held to be very conservative.

The revelations of the survey have been embodied in a preliminary statement, a complete report, covering both the factories and the schools of the country, being in process of preparation.

Data on eye examinations, eye protection and lighting included in this preliminary digest have been gathered from 170 companies located in 23 States and employing over 1,000,000 persons. What is considered an accurate cross-section has been obtained in two ways: First, by securing this wide geographical distribution and, second, by representation in all the leading types of industry and trades such as the manufacture of agricultural implements, automobiles, chemicals, foundry and machine shop products, iron and steel, public utilities, railroad transportation and other products.

The survey furnishes evidence, it is said, that few companies have provided for the examination of the eyes of their employees either as a means of scientific selection at the time of application for employment or as a regular periodic procedure for permanent employees.

Guy A. Henry, Times Building, New York, is general director of the council.

### French Pig Iron and Steel Output in March

French production of pig iron rose from 590,340 metric tons in February to 639,000 tons in March, bringing the total for the first quarter to 1,815,000 tons, Acting Commercial Attaché John F. Butler cables the Department of Commerce. Output of raw steel in March amounted to 573,000 tons, as compared with 554,632 tons in February, and 541,022 tons in January. There were 136 blast furnaces active in France on April 1; 39 furnaces were ready to operate, and 45 furnaces were being constructed or under repair.



# British Rolling Mill Engine Design

Large and Massive Engines of Marine Type with Special  
Features—Both Horizontal and Vertical  
Three-Cylinder Designs

BY MAJOR JOHNSTONE-TAYLOR\*

**A**LTHOUGH the electrical driving of rolling mills is considerably on the increase in Great Britain, steam operation is by no means considered a back number. The erection of new mills and the modernizing of others has necessitated the construction of some very powerful engines during the last couple of years. Rolling mill engine practice cannot be said to be in the hands of any one or two firms. Engines of

of the duty performed, required the massive construction evident in the photograph (Fig. 1) and the two sectional views (Figs. 2 and 3). The base of the engine is exceptionally wide, the bed plate, in fact, weighing over 105 tons and being 22 ft. wide by 29 ft. long. The longitudinal girders *a* are 4 ft. deep, while the six cross girders *b* are 18 in. wide. These cross girders, which carry the main bearings, are fitted



Fig. 1—Large Rolling Mill Engine at the Cargo Fleet Ironworks, in England. It will develop 25,000 hp. in its three 45 x 54-in. cylinders when operating at 140 r.p.m. and may be reversed four times per minute

this class being naturally a special order, the work falls to firms which have the necessary facilities, such as those engaged in the heaviest type of marine engine practice.

## 25,000-Hp. Reversing Engine

One of the most powerful of its type ever constructed, the engine shown in Fig. 1, was recently erected at the Cargo Fleet Ironworks by Richardsons-Westgarth, a firm well known in the marine engine business. This engine is to operate mills producing the largest commercial steel sections. Taking steam at 190 lb. pressure, superheated 100 deg. Fahr., the three cylinders of this engine, which are 45 in. in diameter and have a stroke of 54 in., develop 25,000 hp. at 140 r.p.m. The engine is capable of reversing four times per minute.

This sudden reversing, necessary of course in view

between the longitudinals, with spigotted joints and double-locking keys.

Each of the six main columns is made in two parts, with a planed joint down the center, the two parts being bolted and further secured by hoops shrunk onto bosses cast on the inside of each joint. The reversing shaft *m* is supported on one side of each column. That part of the columns to which the crosshead slides are fitted is cored out for water circulation. The entablature *c* serves to tie the tops of the frames together and as a seating for the cylinders, these castings being 2 ft. deep, while with the crosshead guides *d* also bolted thereto, a thorough tying of the structure is insured.

## Cylinders

The three cylinders are all similar. They are of cast iron with separate liners, *e*, the latter being 2½ in. thick. Space *f* forms a steam jacket. The cylinder bottoms are in the form of cone-shaped castings, *g*, through doors in the sides of which the glands are

\*The Bungalow, Cherry Lane, Lymm, Cheshire, England.

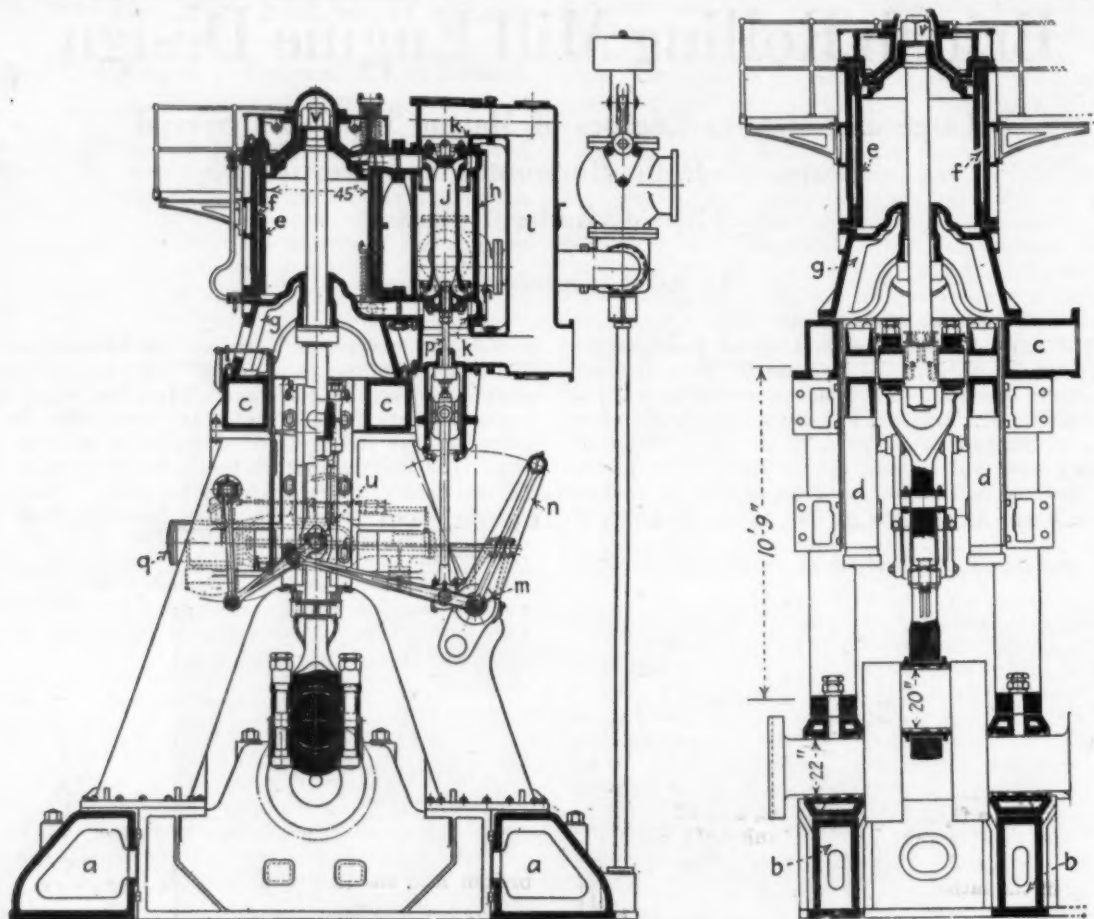


Fig. 2—(Left) and Fig. 3 Are Sections of the Cargo Fleet Engine, the Reference to Parts Being Covered in the Text

accessible. The valve chambers, *h*, are separate from the cylinders and bolted to them, a point of interest being the straight steam passages.

Piston valves, *j*, are 20 in. and 19½ in. diameter, top and bottom, the steam pressure thus balancing the weight of the moving parts. They work 12 liners, *k*, and take steam about the center, the exhaust leaving by the ends and having its exit via pipe, *l*. Each cylinder has a separate 14-in. double beat throttle valve and, while each throttle is separately adjustable, all three are coupled together for simultaneous operation from the driving platform by means of a steam hydraulic reversing engine.

#### Valve Gear and Reversing System

The valve gear, of the Joy type, is capable of cutting off steam from the lead up to 70 per cent of stroke, and the linkwork has been so proportioned as to give even distribution between the two ends of the cylinders in both running directions. To the main reversing shaft, shown at *m*, are attached the reversing quadrant levers, *n*, the latter being cast in one piece as pairs in H-section steel, while the shaft itself is 10 in. in diameter, of ingot steel. The valve spindles, *p*, are 3 in. in diameter and of nickel steel, while the various links are of forged mild steel. They are finished bright all over.

The reversing engine shown in Fig. 4 is essentially the same as is built largely in Great Britain for marine work. There are a steam cylinder, *a*, and a hydraulic cylinder, *b*, both mounted on piston rod, *c*. The two ends of the hydraulic cylinder are connected by pipes with the hydraulic valve, *d*, this being actuated by the same spindle as the steam valve. The hand lever actuating this valve spindle controls the engine, steam being admitted above or below the steam piston as required, and the hydraulic valve is simultaneously opened so that the fluid passes from one end of the hydraulic cylinder to the other. The piston rod is thus free to

move until the hunting gear, *e*, which is operated by a floating lever off the piston rod, brings the slide valve back to the mid position, the hydraulic valve being then closed and the hydraulic piston locked.

Thus the hydraulic cylinder acts as a cushion against the steam piston; it insures a steady, even stroke, free from shock, and acts as a locking device in any position. The reversing engine is located between the first and second cylinders, and is seen at *q*, Fig. 2.

#### Moving Parts

The crank shaft, which weighs over 40 tons, is built up of webs, pins and sections of flanged shaft, as shown in Fig. 3, the shaft itself being 22 in. in diameter and the pins 20 in. The six main bearings are 24 in. long and water cooled. The connecting rods, which are of the forked marine type, are 10 ft. 9 in. long center to center, a 5-in. pin for the valve gear being fitted at *u*. The piston rods are 9 in. in diameter and, working through metallic packed glands, are secured to the pistons by nuts *v*, screwed 8 in. The pistons are steel castings machined all over.

#### Horizontal Engines of 12,000 Hp.

Three engines recently built by Markham of Chesterfield are also three-cylinder engines, but are arranged horizontally, as shown in Fig. 5. These engines are erected at Beardmore's Mossend Works and are non-condensing reversible engines exhausting into heat accumulators at 19½ lb. absolute pressure. The cylinders are 40 in. in diameter and the stroke 54 in., and they are supplied with steam at 160 lb. pressure and 150 deg. superheat.

Solidity of construction being one of the main essentials for engines of this class, the main frame consists of four box-section legs, *a*, between main bearings and cylinders. These are 5½ ft. deep. At the cylinder end these are connected by an entablature and at the front end by box castings, *b*, 4 ft. deep. All the faced



flanges are bolted and fitted with tongue pieces. In addition, ties, *c*, are located between crankshaft and slide bars, thus giving a structure of great strength in all directions.

The cylinders are bolted to the bed plates at the front, being registered thereto at *d*. The outer ends are not bolted down, but rest on feet, *f*, the latter having machined seatings on the bed plate extension, *g*, which is further extended to support the tail rods. While the cylinder fronts are cast integral with the barrel, the rear covers are separate. The body of the stuffing box, *h*, fills the recess left for the working of the boring bar when machining the cylinder barrel. Metallic packing is used in the glands, which are provided also with extra long babbitted bushings to relieve the bottom of the cylinder barrel from wear, while provision of 8 in. diameter piston rods and 8 in. diameter tail rods materially reduces any liability to deflection. The pistons are of cast steel and as light as possible.

In these engines, again, Joy's valve gear is used, the linkwork being clearly seen in Fig. 5, the steam-hydraulic system of reversing being employed. The steam chests also are castings separate from the cylinders, while piston valves, *j*, work in hard cast iron liners, *k*.

The three connecting rods are 11 ft. 3 in. between centers, and have marine big ends and strap and wedge little ends. The crankshafts are of special design, of forged steel throughout. Each pin and pair of webs is a one-piece forging shrunk onto the straight part of the shaft, a design adopted on account of the large size of pins and journals in proportion to the length of stroke. The pins and bearings are 20 in. in diameter, the length of the former being 13 in., and of the latter 26 in. The total weight of the crankshaft is 27 tons and, like the shaft of the Richardson engine, it was trued up in the lathe.

## NEARLY PERFECT RECORD

### Highly Satisfactory Results of Safety Campaign— Challenge Accepted

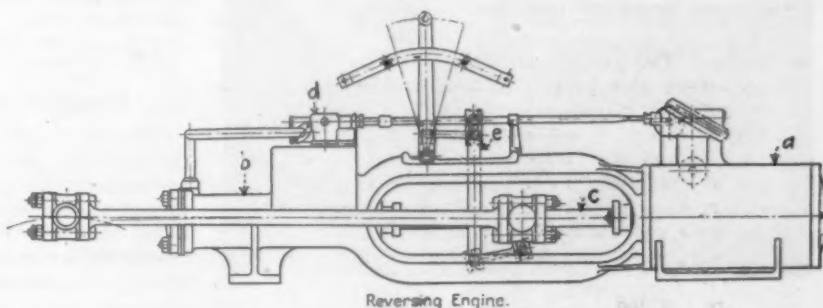
While a perfect record was not accomplished in the safety campaign conducted at the Middletown plant of the American Rolling Mill Co. during the month of April, the campaign was considered a huge success, in that the number of lost time accidents during the month was cut down to four, not one of these being a serious one. Perhaps, however, the success of the campaign can be best measured as to results in the opportunity it presented for welding together the various units of the plant for the common good, and the bringing out, in innumerable ways of the thing described as the "Armco spirit." During the month, 27 days elapsed in which there was not a lost time accident. The campaign was organized and carried through by the employees themselves, and it had the hearty co-operation of the officials of the company.

As a result of the interest established in safety campaigns by the American Rolling Mill Co. at its Zanesville and Middletown plants, the employees of the Andrews Steel Co. and the Newport Rolling Mill Co. at Newport, Ky., have issued a challenge to the Middletown Works for a safety contest during the month of May, and this is now in progress.

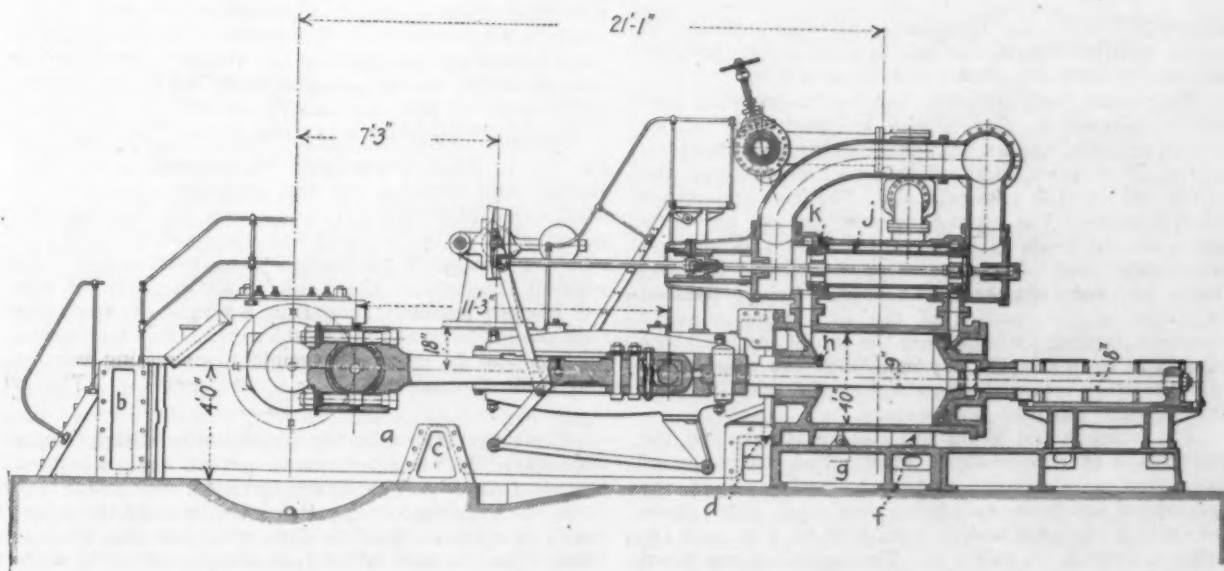
To increase the available output of domestic coke, the British Empire Steel Corporation will erect a coke crusher at its plant at Sydney, N. S., capable of turning out 20 tons of coke per hour broken to the proper size for domestic use. The normal furnace coke is too large for use in house furnaces and stoves and has to be broken into sizes ranging from  $\frac{1}{2}$  to 2 in.

Fig. 4—(Right) Reversing Engine for the Cargo Fleet Vertical Rolling Mill Engine

Fig. 5—(Below) Three-Cylinder Horizontal Reversing Engine of 12,000 Hp., with Cylinders 40 x 54 In.



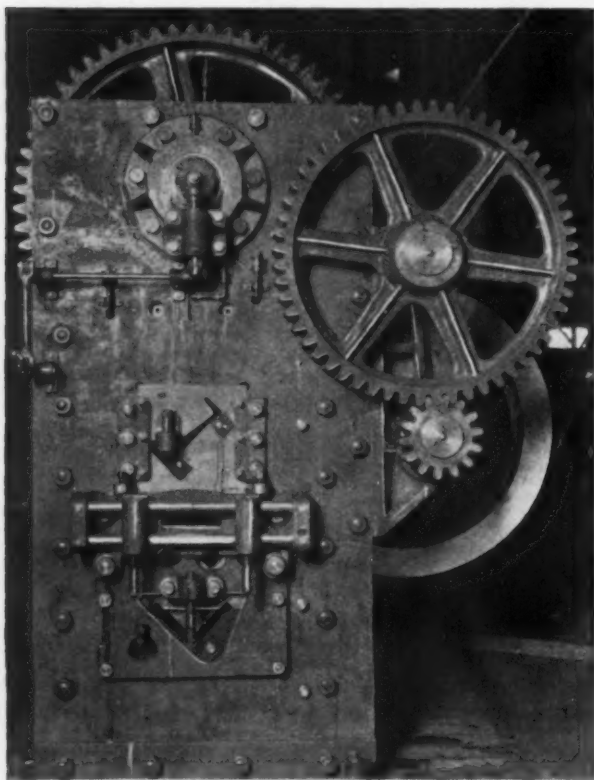
Reversing Engine.



### Improves Line of Bar Cutters

A new series of bar cutters incorporating among other improvements a universal bar cutter arrangement with a special section for cutting channels and I-beams has been placed on the market by the Buffalo Forge Co., Buffalo. More advantageous position of the plunger counter-balancing springs and improved main-shaft bearings are also features emphasized by the makers.

Seven sizes of the machine are available. In the five smaller sizes a more positive method has been provided for effecting plunger engagement, and the larger machines of the series have a new type of cam adjustment for the jaw clutch. The engagement and disengagement of the plunger in the smaller machines is accomplished by a block and ram controlled by a coun-



Improved Bar Cutting Machine. A universal bar cutter arrangement with a special section for cutting channels and I-beams is an added feature

terweighted lever, the counterweight being intended to assure positive holding of the ram in either position desired.

The lower half of the bar cutter working section is designed so that it may be used for cutting rounds, squares, angles, flats and tees without changing knives. The upper half of this section contains the knives for cutting channels and I-beams and other rolled sections. The latter, however, are not universal and a special knife is required for each size channel and I-beam used. The general appearance of the machines has been improved and overall height reduced by changing the position of the two larger plunger counter-balancing springs from the top of the machines to a position inside the frame. With the new drive-shaft bearing, either the flywheel or the shaft may be conveniently removed if necessary.

The plunger and gears are steel castings, and the pinions are of chrome-nickel steel. The shafts are of hammered steel and run in bronze lined bearings, the bearings of the drive shaft being ring oiled. For rounds the cutting capacity ranges from 1 in. to 4 in., and for squares, from  $\frac{3}{4}$  in. to  $3\frac{1}{2}$  in. The capacities are based on mild steel with a tensile strength of 60,000 lb. per sq. in.

### Joseph T. Ryerson & Son Extend Representation

Joseph T. Ryerson & Son, Inc., has become exclusive general sales agent of the Lewis brands of iron made by the Penn Iron & Steel Co., consisting of Louis special staybolt iron, engine bolt iron and drilled hollow staybolts. Sale of the products will be directed by John P. Moses, general manager of railroad sales for the Ryerson company. Products of the Ulster Iron Works, Dover, N. J., formerly sold by Joseph T. Ryerson & Son, Inc., will hereafter be sold by a new selling organization being organized and directed by Howard A. Gray. Joseph T. Ryerson & Son, Inc., has been a factor in this field for years, and by this connection with the Penn Iron & Steel Co. has become associated with George T. Lewis, a veteran maker of puddled iron in this country. Mr. Lewis, president Penn Iron & Steel Co., with works at Creighton, Pa., is the grandson of George Lewis, who came to this country in 1814 from the Penydarren Iron Works of Wales.

### Better Accident Record in Metal-Working Plants

Sixty-eight steel companies, machine shops and foundries, and other heavy metal-working industries comprising partial membership of the Metals Section of the National Safety Council, show relatively small increases in accident rates in comparison with the increase of hours worked in 1923 over 1922. The companies included in the report are those which reported in both 1922 and 1923. The increase in the number of hours worked for this group of industries, which employed about 60,000 men in 1923, was  $9\frac{1}{2}$  per cent, while the increase in frequency rate was only  $3\frac{1}{2}$  per cent. An increase of 11 per cent in the severity rate was due to the increase of three in the number of fatalities. Another cause for the increase in severity rates is the more accurate reporting of permanent disabilities, especially by the smaller companies, due to the use of a new report form which emphasizes more clearly the heavy charges of lost time for permanent disabilities.

### Reorganization of Moline Plow Co.

The Moline Plow Co., Moline, Ill., which has passed through two reorganizations, will further reduce its properties. An official announcement states that directors of the company "have decided to sell off those units of the company which have been operating at a loss and to create, by readjustment of the profitable units, a new and smaller implement company, which will confine its operations to those lines on which the company has operated successfully for over 50 years." This action will make about \$4,000,000 available for security holders and will leave a new and smaller organization with a capital stock of about \$3,500,000 and with ample assets for its operation. George N. Peek has resigned as president of the company and Hugh S. Johnson has been placed in charge, assisted by R. W. Lea.

Net earnings of the Sharon Steel Hoop Co., Sharon, Pa., up to June 1, available for common stock after charges and allowing for the preferred dividend, approximated \$1,000,000. The company has enjoyed proportionately better business and consequently more successfully sustained production than most other independent interests in the Youngstown district. It now has enough unfilled tonnage to warrant an operating rate close to normal for several weeks, after which production will be more susceptible to incoming tonnage and trade fluctuations.

Plant operations in the Youngstown district were accelerated last week to some extent over schedules first announced. The Trumbull Steel Co. added one open-hearth furnace to the two which started the week; the Youngstown Sheet & Tube Co. and the Thomas Sheet Steel Co. each added four more sheet mills, while the Carnegie Steel Co. placed in operation a blast furnace at the Ohio Works, which has been banked.



# Late Developments in Steel Rail Practice

Lengths of 39 ft. with Ends Milled—Tie Plates, from Steel  
from Top of Ingots—Improved Hot Bed Treatment Regarded Important

BY C. W. GENNET, JR.

**R**ECENT orders for 130,000 tons of rail for the Southern Pacific System have attracted wide attention, chiefly because these orders mark the first that have been placed by an American railroad for so large a volume of 39-ft. rails and also because all must be "milled" on both ends. No mill in the country was at once able to comply easily with these requirements, but two of the three to whom the orders were distributed are rapidly completing the modifications necessary to their plants, and the circumstances of the whole transaction have tended to arouse interest in the subject of rails. No doubt subsequent inquiries for rails will largely follow the Southern Pacific's lead for long length rail. Brief discussion, or review, of certain rail problems is therefore in order.

## Number of Joints Reduced 15 Per Cent

The reason prompting the use of 39-ft. or 45-ft. rails, in lieu of the prevailing standard of 33-ft., is obvious. Joints, of whatever type used, constitute an item of large expense, not only with respect to their first cost but also to their maintenance. Thus, a decrease of 15 per cent in the number of joints is exceedingly attractive and it has been well established that this can be nearly doubled without risking the effects of excessive rail expansion. Sufficient cars for transporting long length rails are now available, and the chief objection for some time to the general adoption of at least 39-ft. rails has been the difficulty of obtaining them from the mills without the payment of an extra price, which left the matter of the ultimate saving on joints a doubtful one.

Prior to the war the Colorado mill furnished the Western lines with a portion of their orders in 39-ft. lengths and some Eastern mills met the competition. Production was almost invariably reduced, principally because the hot beds and cold finishing departments were, generally speaking, unprepared for properly handling these unusual lengths. No other objections, such as the increased weight of a unit length and its cold straightening, appeared as important disadvantages. But the adjustment of prices following the war virtually served to confine orders to 33-ft. lengths. Now, with Colorado's recent hot bed addition, and some slight modifications at the Tennessee mill to enable it to deliver on the Southern Pacific contract, it remains to be seen what will be done at other plants, such as Gary, Lackawanna and Edgar Thomson, to meet the inevitable demand of the future. The Inland and Steelton mills are already fairly well adapted for the longer lengths.

## Milling the Ends of Rails

Milling the ends of rails is not simply a refinement. It is required to secure squareness and a positive elimination of the hot saw burrs, and the importance of these details has been enhanced by the use of the larger rail sections. Export rails have frequently required milling, and girder rails for street car lines are always milled.

The recent tendency when laying rails has been toward leaving less expansion, or opening, between abutting rails, which means that the ends must be almost perfectly square, and experience has shown that the hot saws are not likely to insure this constantly. The removal of the saw burrs by hand chipping and filing has become most unsatisfactory, very small burrs frequently preventing the joints from getting a good fit and, it is asserted, sometimes nicking the bars so that their later failure results.

A slight burr on the top of the head of the rail is often rolled into the expansion opening by the first few

trains, and, later, when the weather expands the rail, a piece from the head is chipped out. These chipped joints make bad riding track and start battered end rails. Milling the rail ends apparently provides relief from most of these evils, while the operation also assures of less variation in lengths and more accurate drilling of the bolt holes. Few of the mills are at present adequately equipped to perform the milling operation, and, doubtless, there is opportunity for improvement in the milling, or ending, machines generally used. Seemingly, milling and drilling machines might be combined and the two operations performed in one.

## Improved Hot Bed Treatment Suggested

When considering the delivery of longer rails and the necessary reconditioning of some mills to provide for them, the question arises whether the present hot bed arrangements are the best for the purpose. Rails of steel containing as much as 0.85 per cent carbon, and well above its critical point, are often run on to the cold skids of the beds only to be quickly chilled at the places in contact with certain skids. What effect these black spots may have is doubtful but they could easily be avoided and probably considerable rough handling of the rails eliminated if some of the unique methods employed on the hot beds of bar mills were used.

Certainly the pulling up onto the hot beds of long length rails by the present system is almost bound to affect the camber. If the present questionable practice of hand spacing and turning rails on the hot beds is followed with the longer lengths, kinks and short bends will probably be put in the rails to an even greater extent than now.

Notwithstanding that present interest in the rail problem centers chiefly on the mechanical matters mentioned, the old problem of obtaining sound ingots, and consequently rails that are chemically and physically fit, is still a pressing one. Apparently the heavier sections have served only to delay appearance of the defects for which segregation and unsound steel are considered responsible. Again and again it can be shown that half of all the troubles with rails in service occur in the top rails of the ingots. Yet these top rails constitute only from 10 to 15 per cent of the product, depending, of course, on the size of the ingots used.

## Disposing of Top Steel of Ingots

In the case of the large 14,000-lb. ingots, it is highly probable that the second rail is frequently as bad as the top rail from the smaller 8000-lb. ingot. Certainly the development of steel works practice in the direction of using larger units, so economically desirable from a mill standpoint, has had an adverse effect on the quality of rails rolled from near the top of the ingots. When the yield of merchantable material is so important a factor, it would seem that the use of hot top ingots, inverted molds, and every other device possible, should be taken advantage of in an effort to obtain not only a higher efficiency of operation but improvement of quality.

Certain railroads are obtaining relief from the pernicious influence of top rails by some method usually made possible by a particular mill condition. Thus, this year a hundred thousand tons of rails will be rolled at one mill with the nick and break test made on the top rail of each ingot. The Illinois Central is again getting some of its rails with the metal that would ordinarily make the top rail rolled into hot punched tie plates, and the Santa Fe System has been the leader

in prescribing a 25 per cent top discard on a part of its rail.

There is no question that any one of these expedients serves to mitigate the influence in track of the suspicious metal, and of the three plans mentioned, that requiring a 25 per cent top discard is, of course, the most positive in producing the effect desired. It has the disadvantage of increasing the cost and, because of that, it will perhaps not become a common practice.

Use of the top metal for tie plates is logical and has a very strong appeal, but, unfortunately, the mills that were equipped to make hot punched tie plates have seen fit to charge extra for them and the railroads have largely refused to pay the increase demanded. Omission of this extra price for the high-carbon tie plates, and thus an expression of willingness to meet the roads' requirements, would very likely result in increasing the use of the top metal for tie plates, and therefore provide a larger quota of sound rails.

The chemical composition of modern rail steel is frequently a subject of discussion, and arguments are

advanced favoring the use of a higher phosphorus content to offset the present high carbon and, perhaps, the use of more manganese. Trials of some such steels are being suggested, the idea, of course, being to produce a steel in the open-hearth furnace of more nearly the chemical characteristics, and hopefully some of the physical ones, of the old time Bessemer rails, which gave long life and were apparently free from some of the defects so often associated with high-carbon steels.

In this connection, also, may be asked the question: What is the best method of making the common rail steel of today in the basic open-hearth furnace? Is duplex steel as good as that of the straight open-hearth? Is that made by the continuous process positively reliable? What is the best method for recarburizing? Is it desirable for a certain amount of manganese always to be present in the bath to insure the best results? These are some of the pertinent matters deserving study, for neither heavier section rails nor longer rails will overcome the evils incident to the use of bad steel.

## REHEARING IS ASKED

### Supreme Court Decision as to "Fishing Expeditions" Not Accepted as Final

WASHINGTON, June 10.—The Department of Justice and the Federal Trade Commission have petitioned the Supreme Court of the United States for a rehearing in connection with its recent decision in which it prohibited the commission from going on "fishing expeditions" by delving miscellaneous into private documents of business interests. The particular decision concerned proceedings brought by the commission under Section 5 of the Federal Trade Commission act, charging tobacco producers with price maintenance through alleged agreements with jobbers.

The precedent set by the Supreme Court decision obviously would deprive the commission of broad powers to demand the most intimate sort of data from business interests, such as cost of production. The commission has insisted that it does have this power and it was under such alleged authority that it instituted proceedings in the Claire Furnace Co. and the Maynard Coal Co. cases. The commission was defeated in the lower courts in both cases. The Claire Furnace case is now before the Supreme Court for decision, while the Maynard case is before the United States Court of Appeals of Washington.

The analogy between the tobacco cases and the Claire Furnace and Maynard cases is considered by lower courts to be complete so far as the fundamental issues are concerned. The issue involved is of vast significance to all business interests of the country and by reason of this fact the decision of the Supreme Court in the tobacco cases is considered to have been one of the most important of the kind ever rendered. It was accepted as a victory for the right of business to keep intact its own confidential information, while at the same time, it was recognized as delivering a strong blow to the commission in its crusade to demand information of this sort.

The importance that the commission laid on the decision and the chagrin it caused to it is denoted by the petition supported with a brief, asking for a rehearing, an action which is unusual.

"No more vital matter can be presented to this court than the right of the Government, through its duly constituted agencies, to acquire the information without which it is impossible effectively to administer the laws whose object is the protection of the public interest through the enforcement of sound public policy," says the petition, which was prepared by Solicitor General J. M. Beck, of the Department of Justice, and Chief Counsel William H. Fuller, of the Federal Trade Commission. "Only the most necessary constitutional prohibition should restrict this inherent and essential power. The question presented is so serious, and the

effect of its present determination so far-reaching, that we respectfully suggest it is entitled to repeated consideration by this honorable court."

Claim is made in the petition that the decision rested upon a misconception of the issue presented by the record and is in conflict with previous decisions of the Supreme Court.

"What the court decided was whether the commission had an unlimited right of access to and inspection of corporate records," says the petition. "The commission in the instant case did not claim such a right and was not attempting to exercise it."

"The question before the court was whether a writ of mandamus should issue to enforce compliance with a limited demand for production and inspection of documents in a proceeding against a corporation which was being conducted under separate statutory powers."

### Pennsylvania Labor Report Not Favorable in Iron and Steel

HARRISBURG, PA., June 10.—The semi-monthly labor report to Dr. Royal Meeker, Secretary of Labor and Industry, is pessimistic as far as the iron and steel industry in Pennsylvania is concerned. Reading and Philadelphia are the sole offices displaying optimism.

The Philadelphia reports the transfer of the blade shop of the Westinghouse Electric & Mfg. Co. from Pittsburgh to Lester. This shop will be in the market for filers, machine hands and bench hands July 1. It has placed standing orders for toolmakers, die sinkers, bench molders and angle smiths.

Reading reports that the iron industry is gradually improving, all its mills working full time. The steel mills are operating short hours, and the conditions generally are not favorable.

Pittsburgh reports a decided decrease in the demand for iron and steel workers. Johnstown says its principal steel industries are operating at 60 per cent capacity, with future operations uncertain. The curtailment in shops building steel railroad cars is expected to be only temporary. Scranton reports that shops throughout the district are operating below normal capacity. The supply of applicants is heavy, with no demand.

Harrisburg reports that many departments in its plants are operating on part time schedule. The slackening has been general in iron and steel industries and in machine shops. Thus far, however, there is reported to have been sufficient employment in other lines to absorb those temporarily released.

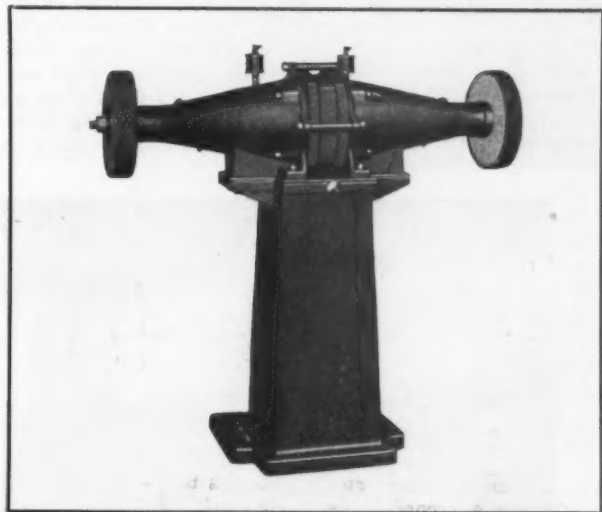
Erie reports that not so many men have been discharged or furloughed during recent weeks as in preceding periods, although agents there find reductions in the number of days worked by plants of the district. Reports are pessimistic concerning improvement.



### High-Speed Polishing Machines

A polishing machine designed for driving the wheel spindle at 3600 r.p.m., which with a 14-in. polishing wheel provides peripheral speed of about 13,000 ft. per min., has been placed on the market by the Cleveland Armature Works, Inc., 4732 St. Clair Avenue, Cleveland.

The machine is available in four sizes equipped with a 5, 7½, 10 and 15 hp. motor respectively. The spindle extends through the rotor and polishing wheels of either 12 or 14 in. in diameter are regularly mounted at each end. Starting and stopping of the



Polishing Machine, the Wheel Spindle of Which Revolves at 3600 r.p.m. Special attention has been given to the selection of bearings.

machine is by means of the knob shown at the front, which operates a make-and-break oil switch.

Special attention has been given to the selection of bearings and to the design of bearing mountings. Two end plates carry the stator laminations, the plates being held together by four steel tie-rods over which the laminations are assembled. The plates are clamped in place and then welded to the rods. The tie-rods serve to hold the two plates together and also to compress the laminations as the rods cool after welding. Four Timken roller bearings, two at each end, support the spindle. Each pair of bearings is held in a steel sleeve contained in a bell-shaped casting, which is held to the plates by means of four cap-screws. This construction is further strengthened by three tie-rods which fit through lugs on the bell castings. A rigid construction is regarded as essential because the strain of an out-of-balance body on its carrying shaft and supports increases with the square of the speed, and it is difficult, if not impossible, to secure dynamic balance of polishing wheels.

The provision for adequate lubrication is a feature, the roller bearings being arranged to circulate the oil. Each pair of roller bearings is mounted with the tapers opposed to each other and with the larger ends toward the outside. The bell castings serve as reservoirs in which oil is kept at such a level that the bottom of each bearing dips into it. As each bearing rotates it picks up oil, and the centrifugal force causes the oil to run to the larger end of the bearing from which it is thrown against a deflector plate. The oil then drops into a channel through which it returns to the reservoir. It is claimed that in this way a constant circulation of oil is maintained.

The high speed at which the machine is driven makes a heavy column necessary. Another condition that must be provided for is the various heights from the floor to the spindle. Both these conditions are met by the use of concrete in the following way: Two iron castings are located at the top and bottom of the column, these castings having cored holes in which steel reinforcing rods are a free fit. On the upper side of the lower casting and lower side of the upper casting, there is an annular groove which receives a

sheet metal form that constitutes the outside of the column. With this form in place, the tie-rods are electrically welded in the castings, after which concrete is poured into the form. Further reinforcement of the concrete is obtained by webs welded to the inside of the sheet-metal form and by the use of wires around the reinforcing rods. The sheet metal form is painted to obtain a desirable finish.

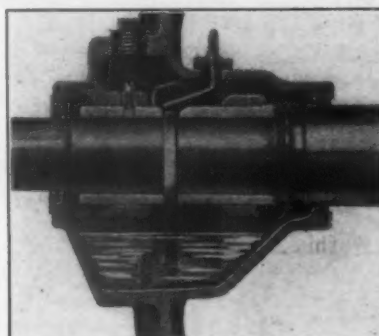
### Motor Bearing Designed to Prevent Leakage of Oil Into Windings

A sleeve bearing for electric motors, designed to prevent the leakage of oil into the windings or the entrance of dust and grit into the bearing, has been developed by the Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa. The new device, which is known as the "sealed-sleeve" bearing, is said to be almost air tight, preventing air from getting in, and oil from leaking out.

The construction of the bearing may be noted from the accompanying illustration. A connecting passage in the upper part of the housing secures a condition of balanced air pressure in the separate chambers into which the housing is divided by the bearing supports. The action of the blower at high speeds sets up a vacuum next to the inside end of the housing and, since it is impossible to seal the housing absolutely at that point because the shaft passes out there, the vacuum extends to the space within the housing itself. If the upper passage were not provided, an unbalanced air pressure would result whenever the oil level rose high enough to close the lower cored openings.

For inspection of the oil ring, an air-tight threaded pipe plug is provided as shown. An inclosed combination filling and overflow opening is placed in the side of the bearing and a cast iron cover is bolted over the oil ring slot and made air tight by an oil proof packing.

Where the shaft passes through the bearing, an improved method of supporting the felt dust-proofing washer is used. The metal cap is ¼ in. larger than the shaft diameter. This is intended to prevent the felt



"Sealed-Sleeve" Bearing for Electric Motors

from being compressed close to the shaft, which would cause it to become glazed and hardened and to burn and wear out.

Oiling of the bearing once or twice a year is said to be all that is necessary.

Employment in Cleveland on May 31 had fallen off 4.5 per cent as compared with April 30, according to the monthly report of the labor relations committee of the Cleveland Chamber of Commerce. This brings the employment index back to where it was in August, 1922, but still 37 per cent greater than it was in the same plants in the low point of the 1921 depression. The greatest reduction during May was in automobile and parts plants, which reduced their forces 8 per cent.

A McKee type revolving distributor will be placed on the B blast furnace of Witherbee, Sherman & Co., Fort Henry, N. Y., which recently went out of blast. The distributor will be built by Arthur G. McKee & Co., Cleveland.

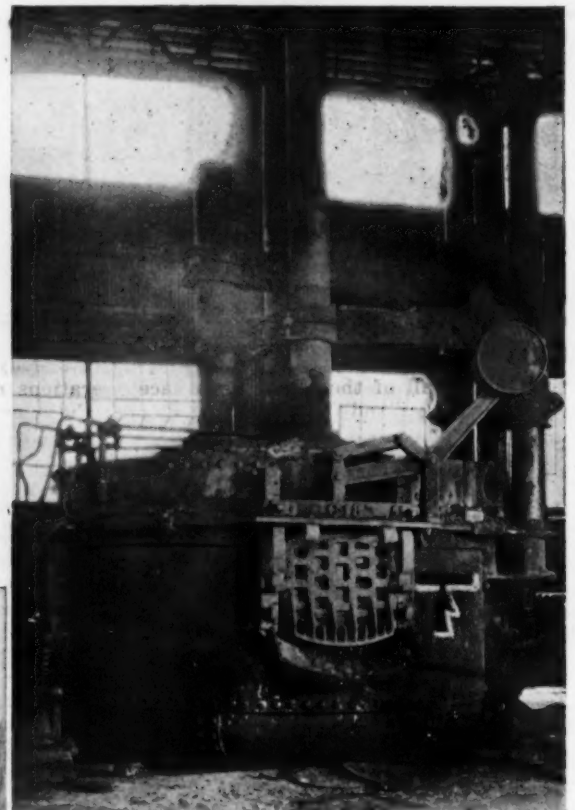
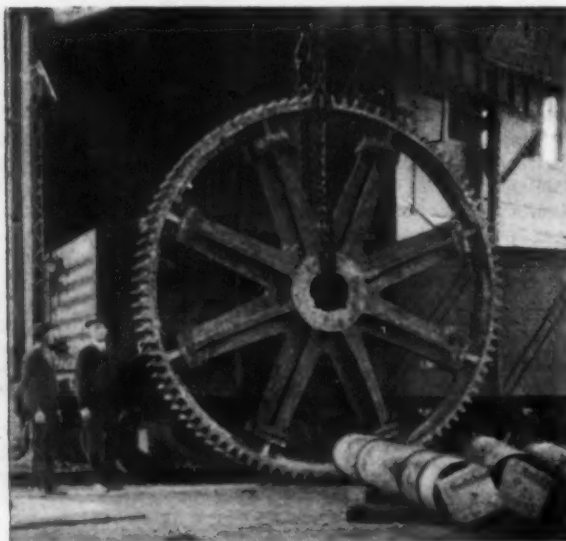
# Nine Tons from a Three-Ton Furnace

Difficulties Overcome in Casting a Large Electric Steel Gear  
on Short Notice in a Southern  
Foundry

A SOUTHERN steel foundry was recently called upon to produce on short notice a comparatively large casting, probably the largest which had ever been produced by that organization. It involved the pouring of 9 tons of steel from a 3-ton electric furnace.

One of the company's customers in Cuba had the misfortune to break the main driving gear of its sugar mill in the middle of the operating season. The result

was an immediate closing down of the mill with the loss of several thousand dollars a day. The casting involved being larger than the Southern foundry referred to had ever before been called upon to produce, the officials set about to ascertain the earliest delivery from other foundries for the replace casting. Having been told that close to 40 days would be necessary for the rough casting, with the necessary machining involving seven or eight days more, the officials decided to make it



Electric Furnace Heat Sheet			
Heat No. 476	Date 2/1/24	Order 476	
Heat from cast 169	Order 476	Order OK	
Condition of cast OK	Order OK	Order OK	
Specification 0.32-38	No. 80-100	Wt. 35-45	
Heat 0.36	No. 0.93	Wt. 0.42	0.039 0.044
CHARGE	WEIGHT	SLAG MATERIAL	WEIGHT
Pig Iron		Line Stone	
Scrap Cast		Flint	
Scrap Charge	Punchings 3000	Fluorapatite	
Scrap Charge	Nuts & Bolts 7500	Weld	
Scrap Charge	2500	Unwelded Casts	
Scrap Charge	4000	Magnesium	
Scrap Charge	170	O. H. Steel	
Scrap Charge	60	Electrodes	
Scrap Charge		Gas	
Total	17250	Total	
Current on 7:00 AM	Current off 10:35	Total Time 3:35	Time 5:22
Water used 1085500	Water before 1081000	Total KWH 4500	KWH 522
Drops and Casters:			
How is condition of Furnace:			
REMARKS:			
A. L. J. Butler			
Champion			

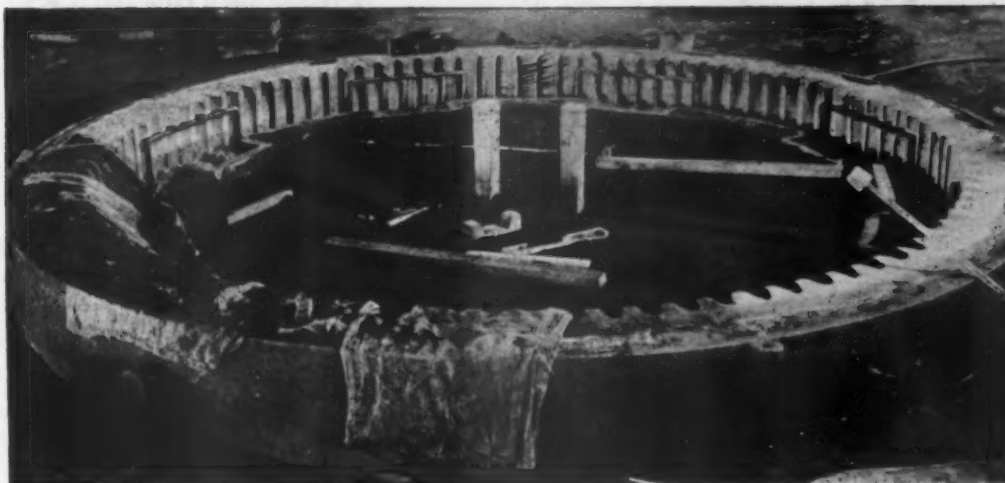
The Black Line at the Arrow (on the furnace above) Represents the Actual Level of the Bath During the Process of Melting Down

The Gear Rim Casting (upper left) Together with the Spider on Which It Operates, Just Previous to Its Shipment

The Charge Sheet Showing the Materials Used in Making Up the Heat



The Mold for the Steel Gear in One Stage of Its Completion



themselves. The actual weight of the machined wheel was 13,300 lb., which with heads, gates, machining losses, etc., required approximately 18,000 lb. of metal to be poured.

Molding on the job was commenced on 1 p. m. on a Wednesday and the casting was poured early the following Friday morning, eliminating any possibility to prepare the 3-ton electric furnace by digging out the hearth as the regular scale of operations of the foundry had to be kept up. It is believed that this is the largest heat of steel ever made from a 3-ton furnace. A description of the operations, as furnished by the company\*, is as follows:

With no possible chance to dig out the hearth it requires considerable care so to support this body of metal that all of the required furnace operations may be adequately handled. There is not only the question of the furnace holding the charge, but the question of obtaining hot steel clear through to the bottom of the melt; of being able successfully to tap out; of slag

\*From data furnished by Larry J. Barton, metallurgist, Dibert, Bancroft & Ross, Ltd., New Orleans, La.

manipulation; and, most important, the question of keeping the metal within the desired limits of analysis.

#### Melting the Metal

The furnace used was a standard 3-ton unit made by the Pittsburgh Electric Furnace Corporation, operating on an acid hearth. The furnace hearth was in such a condition that a 7000-lb. charge, when melted, was up even with the door sills. The furnace was charged according to the usual charge sheet, the large sized pieces being placed on the hearth, and the cavities filled with punchings, followed by similar layers, until the furnace was completely charged. A heavy steel plate was placed inside the furnace to prevent the charge from sliding onto the sills until melting had been well started. The rear, or operating, door was banked up 10 in. with a cement made of white sand and sodium silicate, which was about 12 in. thick. A  $\frac{1}{2}$ -in. plate 10 in. high was slipped in behind the door jamb castings on the furnace to support the weight of the metal pushing against this 10-in. dike of sand. The pouring spout was built in a different manner, as it was

#### LOG OF HEAT

Charge 17,000 lb. of clean, selected scrap, the higher carbon metal being charged on the hearth so that the rising carbon could be taken as an indication as to how melting was progressing in the lower layers of the charge.

7 a. m.—Current on at high voltage.

8.40 a. m.—Good sized pool in center of furnace. The metal has melted from the top, leaving a ring around the walls about 1 ft. thick, with raw scrap over 2 ft. deep underneath the bath. Metal test taken shows a very low carbon as was expected, estimated at about 0.04 per cent.

8.45 a. m.—The long arc offers too much radiation, the walls and roof beginning to drip. Changed current over on to the low transformer tap.

8.50 a. m.—Slag very thin but a fair green. Added 5 shovels of old molding sand. Metal test shows carbon picking up as pool digs deeper.

8.55 a. m.—Slag excellent, thin and foaming. Metal gaining in carbon and becoming more solid.

9.05 a. m.—Metal coming up better.

9.15 a. m.—Carbon increasing; metal more solid, with a better crystalline structure.

9.25 a. m.—Fine metal test. The heat has penetrated to the lower layers and the bottom skull is just beginning to melt. Conditions heavily reducing, with a perfect green yellow slag.

10.05 a. m.—Up to this time conditions about the same, with but a very light skull in the test spoon at the latter time.

10.10 a. m.—Metal pours clean from the test spoon. All conditions within furnace per-

fect. Metal estimated at 0.28 per cent carbon. Silicon beginning to reduce slightly.

10.25 a. m.—Tests taken every five minutes to this hour show constant carbon; silicon picking up slowly, but regularly as can be seen by the oxygen blows. Silicon estimated at from 0.15 to 0.20 per cent.

10.30 a. m.—Perfect conditions; metal fairly cold, but considered hot enough to tap. Changed furnace over to high voltage and added manganese, the ferroalloy being added in good-sized lumps and well moistened. The slag is now a perfect color and texture but is thickening rather fast.

Started to dig out the dike around the spout. This was accomplished by first digging away the outer layers of the cemented sand, and exposing the bricked wall. The center brick was now removed with a hooked bar, then the side bricks until all that was left to hold the metal was a 4-in. dike of the cemented sand. The current was shut off and the electrodes raised. A sharp pointed bar was now used to break through this dike, in a similar manner to tapping on open-hearth furnace for a cupola. As soon as the metal began to flow a heavy bar was rammed into the wall and the steel poured out. As soon as the first rush of the flow had spent itself the furnace was tipped in the regular manner.

10.35 a. m.—Furnace emptied. The metal when poured was extremely hot on the upper furnace layers and rather cold underneath, but so mixed in the ladle that a temperature of the required point was attained; 0.20 per cent powdered ferrosilicon added to ladle on bottom.

necessary to be sufficiently low to pour, yet hold the bath of steel. A 3-in. dike of the rammed mixture was placed across the pouring spout and well supported from behind with clay bricks, they in turn being supported with about 8 in. of the rammed sand and cement. All this was placed in position the night before in order that a perfect set might be assured.

The accompanying log shows the progress of the heat itself. One illustration shows a view of the furnace itself, the black line with the arrow showing the actual level of the bath after being melted down.

The metal was poured from a bottom-pour ladle equipped with a 2½-in. nozzle. The steel poured perfectly and laid absolutely smooth in the mold. Approximately 200 lb. of skull was left in the ladle.

After being poured considerable manipulation was required to dig out the center sand so that it could take up its shrinkage with no chance of cracking. The total

shrinkage was a little over 3 in. by actual measurement, and when the wheel had cooled there was no sign of any cracks. It was but ½ in. out of round, requiring but little forcing to fit to the spider.

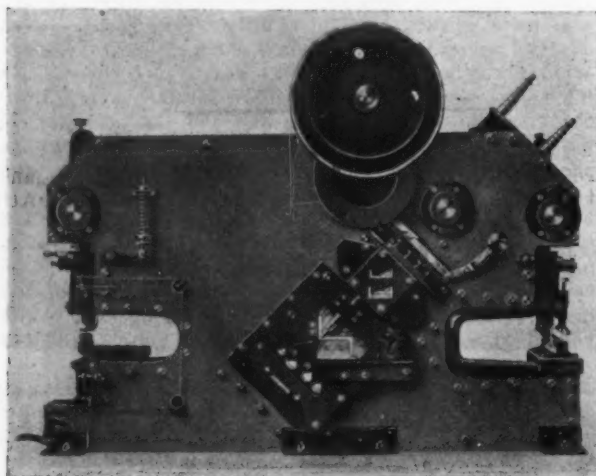
A heat of this size represents about the absolute capacity for a 3-ton furnace due to the difficulty in heating the lower sections of the bath, without burning down the roof and walls. In this particular instance the walls were of silica brick, while the roof was of first quality clay shapes.

The gear and the spider weighed 25,000 lb., the spider being of cast iron. The diameter of the wheel is 13 ft. 8 in. with an 18-in. face, the thickness of section being in proportion.

It took exactly 8 days from the time the order was received until the finished casting left the shop. The wheel was placed in a steel gondola and conveyed to the river, being taken to Cuba by boat.

### Combined Punch and Shear

A combined punch, plate shear, bar shear, angle and tee shear, and beam and channel shear, designated as Iucseffg and intended for wide application in car, locomotive and fabricating shop work, has been added to the line of Henry Pels & Co., Inc., 90 West Street, New York. The combination of several functions in a single



Combined Punch and Plate, Bar Angle and Tee, Beam and Channel Shear

machine, without tool changes, reducing cost and saving space are general features emphasized.

The general arrangement of the machine may be noted from the accompanying illustration. A high and deep punch throat is provided to accommodate wide flange beams or wide plates and webs of wide beams. The punching head, which is of the full floating type, is adapted for a triple gag punching attachment, and may be fitted also with an attachment that will cope both the flanges and webs of beams or other sections. The shearing end of the machine is also provided with a deep throat for wide plates and is equipped with a downholder that may be conveniently adjusted to varying thickness of materials.

The diagonal slide at the center portion of the machine has three separate openings as shown, one for bars of different sizes, one for angles and tees and one for beams or special shapes. The blades in the first two openings are arranged so that material from the smallest up to the rated capacity can be sheared without any change, while in the upper or third opening, the blades for beams or special shapes may be changed quickly as occasion demands. The center openings are provided with downholders, and the angle and tee-shearing opening is equipped with beveling or mitering tables and stops that can be set for any angle from a square cut to a 45 deg. cut.

A feature emphasized is that the angles, tees, beams and other sections are passed through the machine on the flat, which facilitates handling. When beveling

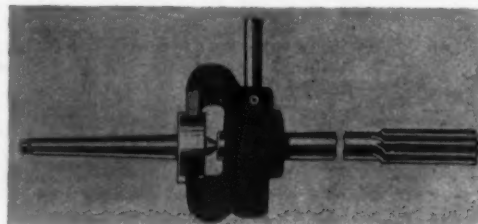
angles or tees the material is positioned so as to be under complete control. The frame is a heavy forged steel plate frame construction. Gears are of steel with teeth cut from the solid; the pinions are machined from forgings. Bearings are bushed with phosphor bronze and are of ample size and the main shaft runs in ring oiled phosphor-bronze bushed bearings. Adjustable gibs are provided to take up wear.

The three operating parts of the machine may be used simultaneously without interference. One power unit is employed for operating the three parts of the machine.

### Self-Centering and Alining Drill and Reamer Holder

A drill and reamer holder, intended to assure accuracy, prevent accidents and permit of increased production, has been placed on the market recently by W. H. Nicholson & Co., Wilkes-Barre, Pa. It is self-centering and alining and may be used in connection with engine lathes, turret lathes, screw machines or drill presses.

The component parts of the device may be noted from the accompanying illustration. When used in the tailstock of a lathe it is claimed that because the tool is lined up and held in position, a straight reamer will produce a straight hole. The breaking of drills due to slipping off the center is eliminated as well as the spoiling of work caused by gouging of the drill or reamer. Used in turret lathes and screw machines it serves as a floating reamer holder. The tools may be changed conveniently, and the absence of adjusting bolts, screws and bushings are features. The holder is also intended for use as a holdback in the



Drill and Reamer Holder for Use In Lathes and Drill Presses

lathe, in which service it is claimed to reduce materially the time needed in changing parts on production work. It is said to eliminate bolts, straps and belt lacing, to replace the live center and act as dog, driver and holdback. When used in connection with a drill press the drills may be adjusted quickly. The holder is claimed to provide a positive drive. Hardened steel plates line up the drills and the center holds them in alinement.

The holder is available in any taper or straight shank up to 1½ in. diameter. Holders with standard B & S or Morse tapered shanks are available from stock.



# Duluth Objects to Pittsburgh Basing

Brief Filed by Civic Organizations of the Zenith City with  
Federal Trade Commission Claims Injustice  
Results from Existing Custom

WASHINGTON, June 10.—Charges of alleged discrimination against Duluth are emphasized in a brief filed with the Federal Trade Commission by the Joint Committee of Civic Organizations of Duluth in opposition to the Pittsburgh-plus method of quoting prices of steel. The brief was prepared by Charles P. Craig and George H. Spear, as counsel for the committee. The brief says, however, that "vital as may be the interests of Duluth and the State of Minnesota, this is neither a Duluth proceeding, nor a Chicago proceeding, nor a Birmingham proceeding. Steel is at the foundation of almost all industrial activity. These proceedings are invested with a degree of public interest and importance never surpassed in any matter before the Trade Commission, and rarely, if ever, exceeded in any cause pending before any court."

The brief declares that when the mills of the Minnesota Steel Co., a subsidiary of the United States Steel Corporation, were built at Duluth, "the threshold of the great Minnesota (ore) ranges, it was fondly hoped that local industries would follow and that Duluth would be developed into a manufacturing center.

"It was a tremendous shock, not only to Duluth, but the State of Minnesota, to learn that under the rigid Pittsburgh practice no benefit would accrue from natural advantages, and that, in fact, Duluth steel would be sold cheaper in Wisconsin, in Illinois, in Indiana and in Ohio than in Duluth itself."

Evidence taken at the hearing is cited in an attempt to prove that the Pittsburgh-plus practice prevented Duluth from becoming a manufacturing center and that it sustains an extreme burden because of the so-called fictitious freight charge from Pittsburgh to Duluth, which in 1918 is said to have been \$13.20 per ton. At the same time, the Birmingham arbitrary, it is pointed out, was \$5 a ton, while the Pittsburgh-plus charge at Chicago was \$7.60 a ton.

Claiming that this has worked numerous disadvantages to Duluth, it is pointed out that while the Duluth mills were selling steel bars to local purchasers at the Pittsburgh base price with "\$13.20 of fictitious Pittsburgh freight added to each ton so sold, Duluth steel was sold and shipped to Milwaukee on such terms that the same netted the Duluth mills \$11.70 less per ton than the price of steel at Duluth."

It is maintained that location at a mill point such as Duluth in itself constitutes a natural advantage, the full benefit of which local industries should be entitled to enjoy. Economically, it is declared that Duluth consumers "are fairly and justly entitled to sell from the Duluth mills at a lower price than the same steel is sold for in Milwaukee or other distant points.

## Excess of Supply Over Demand

The brief argues that Birmingham is favored by reason of the \$5 arbitrary and maintains that it is difficult to understand why "so substantial a privilege should be granted to the Birmingham mills, while the maximum Pittsburgh plus is imposed upon Minnesota rolled steel. Both Birmingham and Duluth represent an excess of supply over demand."

Taking up the question of supply and demand, the brief says:

"In its answer the Corporation pleads 'supply and demand.' In effect, the claim is that Pittsburgh is a point of surplus production, that shortages exist in other districts, that tonnage from Pittsburgh is necessarily shipped to fully supply such demands for rolled steel outside the Pittsburgh district, and consequently that an economic right exists to apply the fictitious Pittsburgh freight item on deliveries made from local mills.

"As we understand the evidence, there has never been a time during the production of merchant bars at Duluth that the surplus has not exceeded demand. In 1920 such surplus production was 80,000 tons. Notwithstanding this overproduction, the Pittsburgh-plus price was not abandoned. The surplus was shipped to other States, with the freight absorbed by the Duluth mills, and sold for less than the Pittsburgh-plus price at Duluth.

"This surplus production at Duluth amounted to more than four times the local tonnage consumed in Minnesota. Adherence to the Pittsburgh-plus price under these circumstances defies any conception of supply and demand. Had any such law been recognized, the Duluth mills would have sold their steel locally without regard to the price dictated on the basis of the unearned Pittsburgh freight charge.

"At Duluth, therefore, supply and demand had nothing whatever to do with what the consumer was required to pay."

## Production Costs

Claiming that production costs are not involved in the Pittsburgh-plus case, it is contended that mill costs are higher at Pittsburgh, where there is no plus, than at Chicago, where the plus has been \$7.60 a ton. At this point the brief says:

"The Corporation plants at Chicago roll shapes at about \$10 less per gross ton than Pittsburgh. The Corporation plants at Chicago roll bars at about \$5 less per gross ton than Pittsburgh and black sheets at about \$7 less per gross ton, all these figures being mill costs taken from commission's exhibit No. 6852.

"If production costs are to be taken into account, Pittsburgh plus is absolutely indefensible, at least so far as the Chicago district is concerned. This consideration alone was sufficient to preclude the respondents from any suggestion either in the pleadings or through the evidence that any occasion existed for a price-fixing system built up on actual cost factors."

## Judge Gary Quoted

The brief quotes Chairman E. H. Gary of the Steel Corporation as saying in a public statement at Duluth in 1918 that Duluth was well situated, "perhaps equally as well as almost any other city," for the manufacture of pig iron, and also as declaring that the cost of producing steel in Duluth was 13 per cent higher than Pittsburgh.

"If Duluth production costs are at all material in these proceedings, it would only seem to be because of the relation they sustain to the Pittsburgh plus added to the price of local steel," the brief states.

It is contended that the plus arbitrary at Duluth is maintained at \$13.20, or \$5 a ton in excess of the difference in production costs even upon the basis of cost data from the respondents themselves. In this the brief finds "the very essence of Pittsburgh plus." The entire price schedule of basic steel is so formulated that Pittsburgh can and does compete to its own advantage with every other production point.

In making further arguments as to what it calls advantages in Duluth, the brief points out the changes that have taken place in the iron and steel industry, and in this connection says:

"In an early day before the great Minnesota iron ranges had been developed and there were no mills at Duluth, Chicago or other points west of the Alleghany Mountains, Pittsburgh enjoyed an advantage of location. But since that time tremendous changes have been wrought. In that great stretch of trade territory defined in the report of the examiner, and in the Cana-

dian Northwest as well, the advantage of location now exists in favor of Duluth. Economic conditions no longer justify the plus fictitious freight change, if in fact they ever did."

## MACHINERY EXPORT EXPANSION

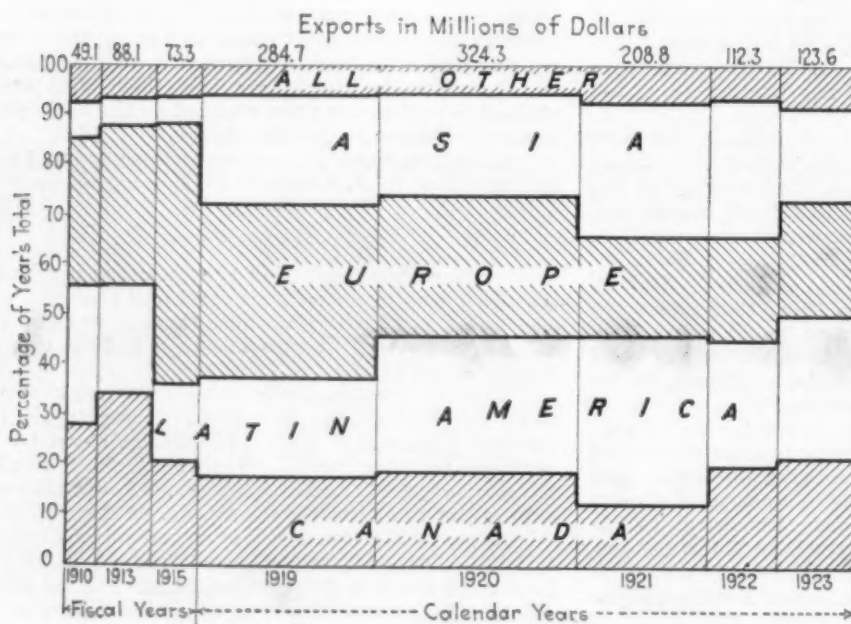
10 Per Cent More Industrial Machinery Shipped  
in 1923 Than in 1922 and 40 Per Cent  
Above 1913

Figures of the Industrial Machinery Division of the Department of Commerce show United States 1923 exports amounting to \$123,598,000, compared with \$112,289,000 in 1922, and \$88,059,000 in 1913. The figures for the five latest calendar years and for the fiscal years 1910, 1913 and 1915 are given in the table. The dia-

1913 took as much as \$5,300,000 in value, these being Canada and Great Britain, against seven countries in 1923, the five additions being Japan, Cuba, Mexico, Australia and France. This means that the distribution of the 1923 exports was much more widespread than in 1913. The greatest falling off in percentage was that of Germany, to which only one-seventh as much was sent last year as ten years ago.

## United States Foreign Trade

A large amount of information in statistical and diagrammatic form is supplied in a 110-page pamphlet, issued by the Department of Commerce as Trade Information Bulletin No. 25, and entitled "Foreign Trade of the United States in the Calendar Year 1923." A large part of the value of the information given lies in the comparisons made with previous years,



In This Diagram the Width of Each Vertical Band Represents the Total United States Exports of Industrial Machinery in the Designated Year. As the percentages going to various countries are shown by the vertical scale, the area of each block represents the amount going to that country or grand division. Japan accounts largely for the great increase in Asia's showing

Destination	Fiscal Years			Calendar Years				
	1910	1913	1915	1919	1920	1921	1922	1923
Canada .....	14,113	30,637	15,449	52,346	63,157	26,966	23,010	27,719
Latin America* .....	13,484	19,086	11,060	54,561	88,258	70,334	28,020	34,827
Europe .....	14,149	28,119	38,219	100,397	90,781	41,100	23,236	28,427
Asia .....	3,666	4,610	3,777	61,880	65,308	55,599	31,037	22,577
All other .....	3,705	5,607	4,759	15,495	16,748	14,799	6,986	10,048
Total .....	49,117	88,059	73,264	284,679	324,252	208,798	112,289	123,598
Increase over 1913, per cent .....				223	268	137	27.5	40.4
*Includes:								
Mexico and Central America .....	6,412	6,209	2,590	11,144	21,235	23,373	9,609	9,608
South America .....	4,309	8,000	4,457	24,048	28,736	23,181	11,385	14,965
West Indies .....	2,763	4,877	4,013	19,369	38,287	23,780	7,026	10,254

gram covering these exports shows vertically the percentage going to the different sections of the earth, while the horizontal width of each band indicates the total amount of export. The area of each section in the diagram, therefore, is proportional to the total amount sent to each group in each of the several years.

Except in 1921, when Mexico temporarily took the lead, Canada has been the largest buyer of American industrial machinery in each year given in the department's table. Second place was held by Great Britain in 1923 and in 1913, by Japan in 1922, Canada in 1921, France in 1919, and Mexico in 1910.

In spite of the heavy increase from 1913 to 1923 in total value—an increase accounted for wholly by increased unit prices—Canada's purchases fell off about 10 per cent. There were only two countries which in

some of which extend back for half a century. The "balance of trade" for a considerable period is analyzed, together with the estimated balance of international payments, including the "invisible" exports and imports, for 1922 and 1923.

Subdivision of our trade among the grand divisions of the earth and analysis by commercial regions is given considerable space, while the exports and imports to and from individual countries is compared over a period of years. A further subdivision shows the exports and imports of crude materials, foodstuffs, both crude and manufactured, partially manufactured materials, and manufactures ready for consumption. Percentage relations are worked out in connection with many of these items, as well as the compilation in millions of dollars.



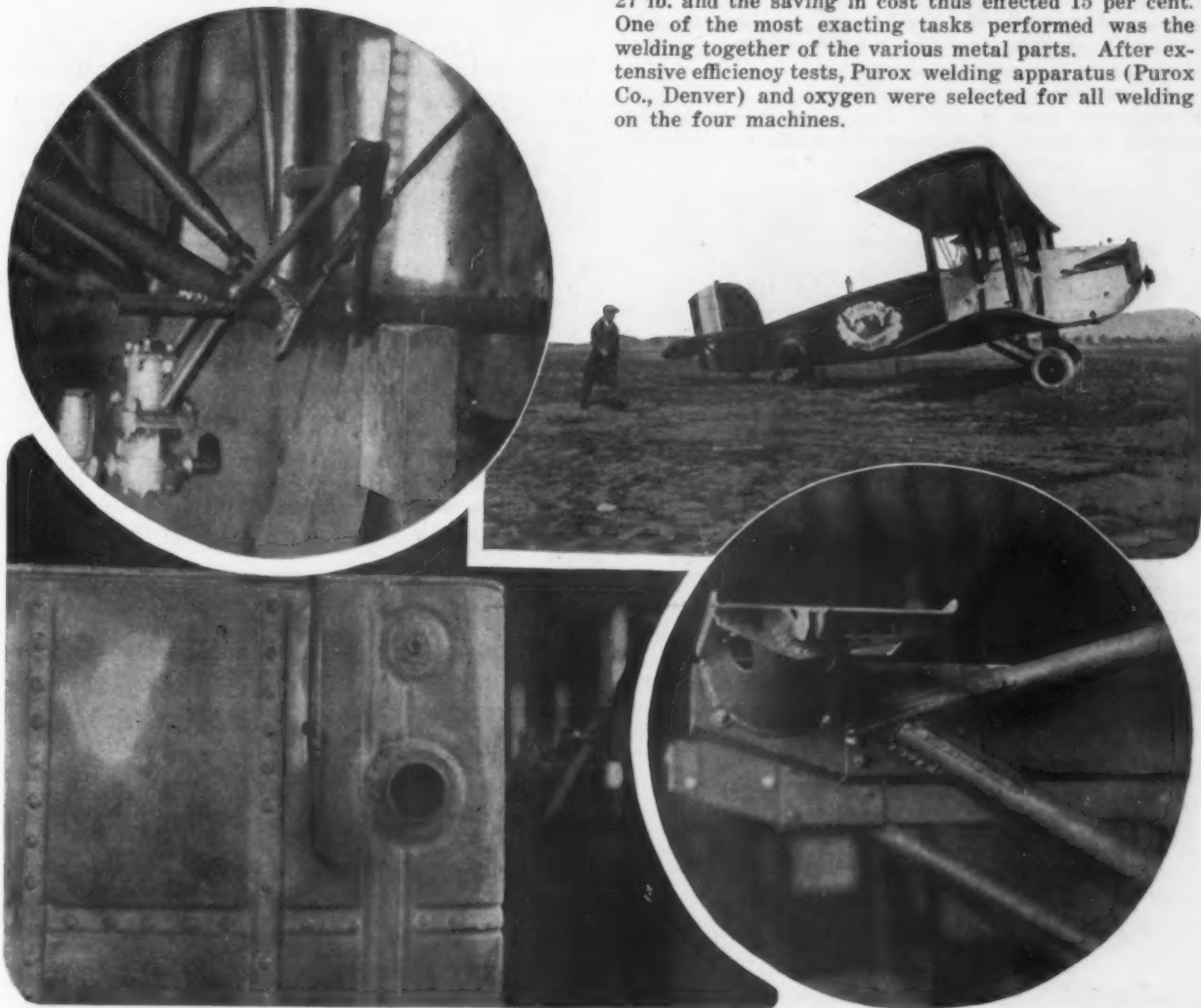
## WELDING WORLD HISTORY

### Tanks and Fuselage of World-Flight Airplanes Welded—Tests Showed Exceptional Strength

Apart from the interesting human side of their epoch making flight around the world, which was begun by four United States Army airplanes, March 19, there is a romantic mechanical story involved. No machines ever faced a more grilling ordeal than that which confronts

altitude of 7000 ft.; will travel 100 miles per hour, and can be safely landed at 53 miles per hour. As a landplane, the cruiser with its maximum weight and load totaling 6900 lb. is capable of reaching an altitude of 10,000 ft.; will travel 103 miles per hour and can be safely landed at 35 miles per hour. The cruising radius of the planes as land ships is 1800 miles; as seaplanes, 1450 miles.

Tanks on the planes were constructed of sheet aluminum and the framework of steel tubing. The saving in weight of steel fuselage construction over wood was 27 lb. and the saving in cost thus effected 15 per cent. One of the most exacting tasks performed was the welding together of the various metal parts. After extensive efficiency tests, Purox welding apparatus (Purox Co., Denver) and oxygen were selected for all welding on the four machines.



Some of the Welding Work Done on the American Army Air Cruisers Now Making Their Way Across Asia on Their Trip to Circumnavigate the Globe. At upper left and at lower right are shown welds on the struts and longitudinal members of the fuselage. At lower left is a portion of the gasoline tank, showing a welded vertical seam (to right of the burner tip) and two welded-in bosses for pipe connections

these super-ships, nor were any ever better prepared mechanically, it is said, to meet it. The four planes were designed as land or water-type planes for long distance flying, and are readily convertible to either type by the interchangeable features of land or water-type landing gear.

Made in three detachable sections, the fuselage is constructed of steel tubing. Wings of standard wood box beam and built-in rib construction may be folded back for convenience in storage. The water-type landing gear consists of twin pontoons of built-in wood construction, the top covering being of three-ply veneer, and the bottom planking two plies of mahogany.

Specifications of the cruiser are as follows: Weight, empty as a seaplane, 5500 lb.; disposable load, 2500 lb.; gross weight, 8000 lb.; as a landplane, weight, empty, 4300 lb.; disposable load, 2615 lb.; gross weight, 6915 lb. Gasoline capacity, 450 gal., enough for an 18-hr. non-stop flight. Wing span, both upper and lower, 50 ft.; height, 13 ft. 7 in.; length, 35 ft. 6 in. Engine, 400-hp. Liberty, capable of turning the propeller 1750 r.p.m.

As a seaplane, with its maximum weight and load totaling 8000 lb., the cruiser is capable of reaching an

Tests on the tubing welded with a V-shaped weld broke it straight across instead of pulling the weld apart or breaking in conformity to the shape of the weld; thus indicating that the weld was in fact stronger than the original tubing. Because of the tremendous strains to which the parts of these planes will be subjected continually on their trip around the world, the value of such welding can scarcely be over-estimated.

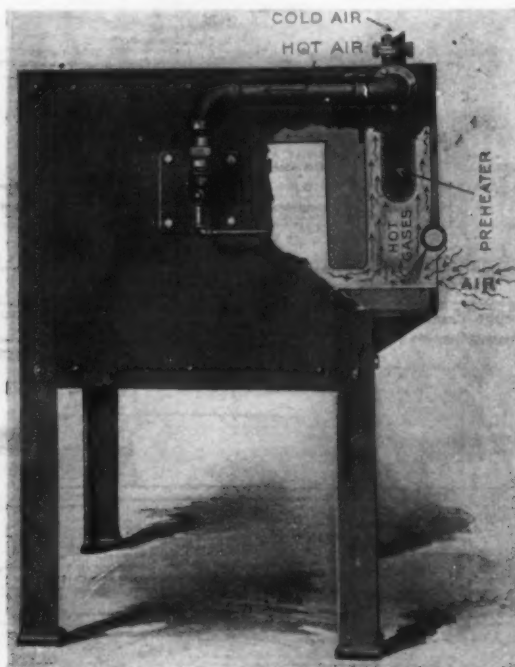
The West Allis Foundry Co., West Allis, Milwaukee County, Wis., was subjected to a fine of \$25 and costs in Municipal Court at Milwaukee on June 3 upon being found guilty of violating the State law relative to advertising for help while a strike is in progress. It was alleged that the company advertised on Feb. 26, 27 and 28 for additional molders, without mentioning the fact that a strike of molders was then in progress. The defense was that the plant was not strikebound as men had been obtained to fill the places of the striking employees and the plant was operating on a normal basis. The conviction will be appealed to the State Supreme Court as a test of the constitutionality of the law.

## AVOIDING OVERHEATING MEN

### Keeping Hot Forge Furnace Gases Away from Operators to Promote Efficiency, Increase Production and Reduce Cost

Studies on the effect of various changes in heating furnaces have been made by W. S. Rockwell Co., New York, in so far as cost of production and comfort of operators are concerned. Forge furnaces of the usual type give off such intense heat that it results in frequent shutdowns during the summer, because men are made ill by the heat or refuse to stand up under it day after day in the most torrid weather.

Of particular interest along this line is a new draft arrangement used in small forge furnaces operating with oil, by means of which a suction of air is created



Partial Section of Forge Entrance Shows How the Blast Creates a Suction and Draws Air in From the Outside, While the Hot Gases, Having Done Their Work on the Steel, Are Directed Over the Preheater and Thus Do Double Duty

at the opening where metal is handled. This induced air prevents the escape of the hot gases into the working space. Of course, the radiation both from the heated steel and from the forge continue, but this is bearable when the more disturbing elements are gone.

In the illustration is shown the (patented) baffle arrangement, which diverts the hot gases up into a pre-heater for the air and thus produces a forge of the economizer type. The action of the hot gases forms an induction movement by which air is drawn in at the front of the forge, instead of being expelled at that point. After the hot deflected gases have been used to heat the air passing through the pre-heater within the insulated outlet chamber, they are discharged above the head of the operator.

All the air delivered to the forge is controlled by a threaded blast gate with a brass slide. This permits accurate control, both of the fire and the atmosphere in the heating chamber, and prolongs the cooling. At the same time, it decreases materially the destructive effect on the brick work of quick cooling. It does away also with the circulation of cold air through the hot forge when the fire is off.

Retention of heat due to this construction is said to be such that forges frequently may be started in the morning from the contained heat, without the use of a torch. Naturally such a forge is much heavier in construction than the older type and is lined with double courses of brick, which break joints and decrease the radiation loss.

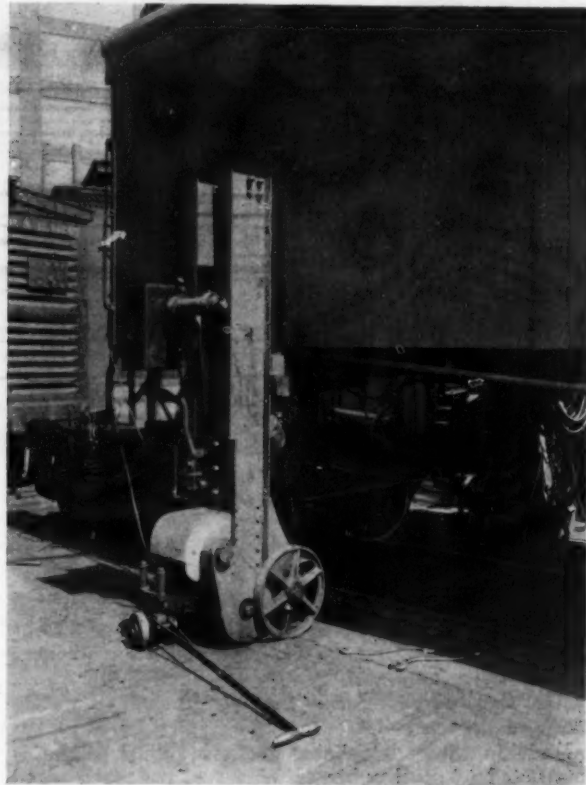
Results in output in small drop forge furnace operation are shown by a number of cases where direct comparison has been made. In one such case quoted the output per unit of floor space is reported to have been increased 37 per cent, while the corresponding increase in the output per unit of fuel is given as 78 per cent. In another case of drop forge operation the output of the forge furnace per hour was increased 43 per cent, with a 90 per cent gain in output per unit of fuel and a reduction of 39 per cent in the time required to heat steel from the time of lighting the furnace to starting forging.

### Portable Car Hoist for Use in Shops or Yards

The portable car hoist illustrated, recently placed on the market by the Whiting Corporation, Harvey, Ill., incorporates the same basic principles as the company's locomotive and car hoists previously offered and is designed to eliminate the necessity of a special foundation or pit.

This equipment may be used anywhere in the shop or yard where there is a level floor capable of supporting the load. Safety is a feature emphasized. Power being required to lower the hoist, a car can be supported on the hoists without blocking, and, it is said, may be left over the noon hour or over night without danger.

The machine may be used under any type of car and for any operation. When removing the trucks, four are used, two at each end of the car, permitting the trucks to be grouped and handled together. When removing one, two or three pairs of wheels, or renewing springs, two hoists are employed, the truck being supported by suitable clamps from the under frame of the



Portable Hoist Employed in Car Repair Work

car during the lifting operation. This universal application is emphasized as making possible the elimination of many sizes and styles of jacks ordinarily used and it is claimed that in a recent installation 12 such jacks were replaced by one set of hoists.

The hoist is a motor-driven screw jack mounted in a substantial frame with three bearing surfaces, spaced to give greater stability than in ordinary jacks. A toggle arrangement raises the jack off of the bearing surfaces and permits it to be pulled from place to place on wheels like a small truck. One, two, or four hoists may be operated as a unit, the control being centralized in one push button station.



# German Machinery Trade Is Hard Hit

Only Fractional Employment of the 750,000 Workers—

Output About 7-10 Ton for Each Employee

—Losses by Emigration

BERLIN, GERMANY, May 15.—The annual report presented at the general meeting of the Verein Deutscher Maschinenbau Anstalten, held in this city on May 10, contained a number of statements and comments that will be of interest to the machinery trade in the United States. A liberal synopsis is presented below:

The year 1923, in its economic aspects, was the most unfavorable Germany has known since the foundation of the empire. The value of \$1 fell from 4260 marks on Jan. 1 to 4,200,000,000 marks on Dec. 31, and although this catastrophic devaluation was stopped by the introduction of the rentenmark at the end of the year, it was not possible to repair the evil effects of all that had preceded. The less so, seeing that the most productive parts of the empire, in which lived 23 per cent of German industrial laborers and which contributed from one-fifth to one-fourth of the total German production, were still separated from the other German territory by embargoes on exportation and importation, or by duties on exports and imports, and by the crippling of railroad service.

## Employment at Low Ebb

Of 2,000,000 persons employed in the occupied territory, not more than one-quarter to one-third were regularly employed at the end of the year, while in other districts 25 per cent of the workers were entirely unemployed and about 30 per cent found work only for a few hours daily.

The distress of the German population is to be seen in the imports of grain and rice, which decreased in 1922 by 44 per cent and in 1923 by 26 per cent from those of 1913, while at the same time the home grain production fell off 30 per cent. The consumption of meat per head of the population was only 20.5 kg. in 1923, as compared with 40.7 kg. in 1913. These conditions find such a reflex in machinery manufacture as might be expected from an insufficiently nourished population. The increasing desperation of the people was seen also in an increasing emigration, by which many of the most capable and enterprising laborers have been lost to Germany.

## Machinery Industry Hard Hit

The violence of the blow the machinery industries received in the general crisis of 1923 is shown in statistics collected by the Verein from about 800 shops. The shipments of machinery per person employed by the industry were as follows in 1922 and 1923, expressed in metric tons:

	Shipments Abroad	Shipments Inland
1922.....	0.227 ton	0.752 ton
1923.....	0.186 ton	0.530 ton
Decrease in 1923.....	18 per cent	30 per cent

It is understood that in view of the small amount of work done in the shops, managers had to surmount the greatest difficulties in maintaining their organizations. Owing to the great number of employees in finished lines such critical periods of course are especially disastrous to industry in general. The number of workers attached to machinery manufacture alone, apart from all accessories, is estimated at about 750,000.

## Skilled Workers About 50 Per Cent

The Verein has made extensive inquiries to determine the relative numbers of workmen, officials, the skilled and unskilled men, apprentices, etc. The results

from information furnished by 1007 shops shows the following distribution in each 1000 workers:

	1922	1923
Skilled workmen .....	457	464
Half skilled workmen.....	191	191
Unskilled workmen .....	170	160
Workmen under 18 years.....	27	24
Women .....	26	24
Apprentices .....	117	124
Young engineers .....	6	6
Total workmen .....	1,000	1,000
Total officials .....	206	215

The Verein represents only the general interests of German machinery manufacture, while the special interests of the various branches are taken up by separate organization, the so-called Fachverbände, of which there existed at the end of the year 137.

In spite of the effect of the year's poor trade on the ability of manufacturers to bear the expenses of the Verein, the number of members increased from 1153 firms with 524,818 employees in 1922 to 1203 firms with 513,945 employees at the end of 1923.

## Handicaps of Metalworking Industries

The report refers to the fact that German industry had lost by the consequences of the war 80 per cent of its iron ores, 44 per cent of its blast furnaces and 34 per cent of its rolling mills, and touches on the difficulties machinery manufacturers have now in getting the castings, forgings and rolled iron and steel they need. The surplus of exports of the iron producing industries, about 670,000,000 marks in 1912, changed into an enormous surplus of imports, not only in the year 1923 but also in 1922, a year in which the iron producing plants could work fairly regularly. The iron consuming industries, however, which contributed 14.3 per cent of the country's total exports in 1912, increased to 20-25 per cent of the export total in the year 1922. As machinery manufacture is the most important branch of iron consuming industries, it is evident that the balance of trade and the ability of the German people to meet their obligations depends to an important extent on exports of machinery.

The report discusses the infinite difficulties in the settlement of all payments which resulted from the catastrophic devaluation of the currency, also the legislation for price and currency regulation, questions relating to standard stipulations of contracts, the possibilities of fulfilling the Versailles treaty, and many other problems affecting the machinery trade, showing in it all that the work of the organization in the year 1923 had been capably done and was far-reaching in its effects.

The H. J. Ferguson Construction Co., Cleveland, has begun work on the first unit of the new large gin plant of the Continental Gin Co., a nation-wide industry of Birmingham, Ala., the first unit to be mainly machine and foundry plant. Twenty acres have been purchased as the site for a large gin manufacturing plant. The first unit will cost \$350,000 and ultimately the plant will represent an outlay of \$1,500,000, and will replace two old plants now operated by the company.

The Greenville Steel Car Co. of Greenville, Pa., last week posted notices announcing a reduction in wages averaging 10 per cent, affecting approximately 400 officials and workers. Keen competition, obliging the company to pare costs, was given as the principal reason for the action.

## CONGRESS ADJOURNS

## Reorganization of Diplomatic and Consular Services One of Few Good Measures Passed

WASHINGTON, June 10.—Winding up in a frenzy of politics, the first session of the Sixty-eighth Congress came to a close last Saturday night without passing on a number of constructive bills. At the same time, it did not fail to put through those measures which it thought would make votes.

Business interests of the country undoubtedly gave a sigh of relief when Congress did quit, but inasmuch as the country has entered upon a Presidential campaign, it may well be expected that business will hold its breath until after election. The tactics of this Congress have left the strong impression that it was even more political than the average Congress is, and that is saying a great deal. It was shot through with all sorts of political theories, isms, and other snares included in the tricks of the demagogues and presented as an offering for votes. Especially was it true that almost anything that would bait capital was recognized as being above par in political value. The bonus and the tax laws enacted, and the scandal mongering in connection with the oil investigation provided splendid exhibits of this line of reasoning.

Among the bills which Congress failed to act on was one introduced by Representative Winslow of Massachusetts to improve foreign trade service and to provide statutory standing of commercial attachés and trade commissioners for the Department of Commerce, and also to provide reasonable salaries for these officials. The measure has been explained at length in previous issues of THE IRON AGE. Congress did, however, pass the Rogers bill for the reorganization and consolidation of the diplomatic and consular services. The measure put the two services on an interchangeable basis and makes it possible to transfer men from one service to another. It also establishes a uniform salary scale and a representative allowance by which it will be possible to lessen the demands on private means of ambassadors and ministers so that these posts can be accepted by men of moderate means instead of those of great wealth. The Congress also must be given credit for having been rather liberal with the Department of Commerce. It provided the department with about \$220,000 for work by commercial attachés, representing an increase of about \$40,000 over the present allowance. There also was provided \$100,000 for new work by the trade commissioners.

Objection by Senator King, of Utah, killed the bill authorizing \$150,000,000 for the construction of eight new cruisers and modernization of battleships to bring the American Navy up to the Arms Conference basis. The soldiers' bonus legislation, while enacted several weeks ago, was given a rather sad twist for its advocates, when Congress adjourned without passing the appropriation for administering the law. The appropriation had unanimously passed the House but it was blocked in the Senate by Senator Borah, who had consistently opposed the legislation.

It is not necessary to make any detailed attempt to show what Congress did or did not do, but the point has been made by observers in Washington that the record of the Congress taken as a whole is distinctly anti-business, and is a challenge to those who have stayed away from the political polls. At the same time, it is contended that if it will arouse them to more active interest in clean politics in the future it will have proved a painful but wholesome lesson.

"When Insurance Insures, and When It Doesn't" is the title of a new booklet published for general distribution by the American Appraisal Co., Milwaukee. The booklet deals with the use of an appraisal in the proper placing and collection of insurance and contains a number of charts on price fluctuations and the operation of the co-insurance clause.

## MAY STEEL OUTPUT

## Daily Rate Fell Off About 24 Per Cent—Yearly Rate About 30,370,000 Tons

The sharp contraction in steel output which commenced in April was even more drastic in May. The daily rate of 97,343 gross tons was 30,870 tons less than the revised figure for April. This is a decrease in May of about 24 per cent as against about 20.4 per cent for April from March. The May rate is just under the rate of operations in August, 1922, when the daily rate was 97,380 tons. The May volume was therefore the lowest in the last 22 months.

The statistics of the American Iron and Steel Institute show that the May output of companies which made 94.84 per cent of the country's total in 1923 was 2,492,643 tons. Thus, assuming that the 5.16 per cent not reporting produced at the same rate a total May output is indicated of 2,628,261 tons. The equivalent annual rate is about 30,370,000 tons.

The table gives the production by months of the different kinds of steel, together with estimated daily rate for all companies. The total calculated production for monthly and daily outputs has been revised in the light of the final figures for 1923.

Monthly Production of Steel Ingots, Reported by Companies Which Made 94.84 Per Cent of the Steel Ingots in 1923

Months, 1924	Open-Hearth	Bessemer	All Other	Approximate Daily	
				Calculated Monthly Production all Companies	Production all Companies Gross Tons
Jan. ....	2,766,534	667,032	12,577	3,633,639	134,579
Feb. ....	2,902,641	695,905	14,085	3,809,185	152,367
March ...	3,249,783	706,801	15,260	4,187,942	161,075
April ...	2,575,788*	573,381	12,356	3,333,535*	128,213*
May ....	2,060,896	425,099	6,648	2,628,261	97,343
5 Mos. ...	13,555,642	3,068,218	60,926	17,592,562	134,294
*Revised, 1923					
Jan. ....	2,906,892	728,270	9,467	3,841,095	142,263
Feb. ....	2,613,564	669,903	10,797	3,471,843	144,660
March ...	3,046,309	799,525	12,841	4,066,680	150,618
April ...	2,974,579	772,485	13,933	3,963,736	158,549
May ....	3,136,558	847,418	16,719	4,216,355	156,161
5 Mos. ...	14,677,902	3,817,601	63,757	19,559,709	150,459
June ...	2,821,239	737,845	15,483	3,767,256	144,894
July ...	2,658,449	680,884	11,496	3,531,458	141,258
Aug. ...	2,796,370	701,059	9,326	3,695,788	136,881
Sept. ...	2,562,771	613,709	8,602	3,356,776	134,271
Oct. ....	2,735,513	649,452	9,163	3,577,091	132,485
Nov. ....	2,348,361	616,335	9,309	3,134,321	120,551
Dec. ....	2,135,898	570,004	10,912	2,863,266	114,531
Total ...	32,736,503	8,386,889	138,048	43,485,665	139,825

## New York Iron Workers Strike

Although not a single construction firm, a member of the Iron League of New York, has made any concession to the striking iron workers, it has been declared by the strikers that union terms have been accepted by all but 14 firms in the city belonging to the league. P. J. Morrin, president of the International Association of Structural and Ornamental Workers, spokesman for the workers, also stated that of 1359 workmen who left their jobs on May 1, all but 450 had returned to work. At the offices of the Thompson-Starrett Co., which is not a member of the Iron League, it was revealed that while no formal agreement had been reached, nevertheless the \$12 per day was being allowed in order to prevent interruption of work on several important projects.

At the offices of Walter Drew, counsel for the Iron League, it was stated that work is progressing satisfactorily and without concession to the strike demands, either in wage increases or in allowing a closed shop; that non-union labor has manned the jobs, that no more than \$10.50 per day has been paid, that there are 723 men at work on jobs of members of the league, and that the league purposes to operate just as it has for the past 18 years under an open shop. Mr. Drew explained that the figures applied only to New York, because the Iron League had no direct connection with the strike situation in New Jersey.



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ESTABLISHED 1855

# THE IRON AGE

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## Iron Ore in Abundance

IT was common some 20 or 25 years ago to view with concern the rate at which the United States was using up its high-grade iron ores and to speculate on the number of years that could be counted on before the famine. Now and then, as the resources of this or that country in raw materials are discussed, the question comes up today. Just before the United States Steel Corporation acquired the Hill or Great Northern ore properties in Minnesota in 1905, they were spoken of as the only iron deposits of any size that had not been taken up by steel producing interests. Hence the deal was referred to as a very good stroke of policy for the Steel Corporation. But later the Steel Corporation, under an option it had, surrendered the Hill properties to their original owners. It had had time to find out that there would be no ore famine, even in Lake Superior ores, and that its contract, with its steadily advancing royalties, based on the belief in a coming iron ore scarcity, would prove to be intolerably onerous.

Briefly, the known reserves of commercial iron ore in the world are now estimated at 30 to 35 billion tons, and whereas the expected life of the world's iron ore supplies was estimated not many years ago in decades, it is now expressed in centuries. For while actual reserves have been set down by continents and by countries and footed up to 32 billion tons and more, "potential reserves" have been calculated in the same way at from 95 to 100 billions.

In the United States and Cuba are roundly 30 per cent of the commercial iron ores of the world, while easily accessible in Brazil are deposits estimated at 20 to 25 per cent of the world's total. Newfoundland has 10 per cent or more, so that North and South America together may be credited with 65 per cent of the world's supply.

The United States and Cuba together are credited with 10 billion tons of "actual reserves." Using as a measure the largest single year's consumption in this country—76,000,000 tons in 1917—the combined supplies of the United States and Cuba would last for 130 years. And if the potential reserves in this country and Cuba, estimated at 80 billions, ultimately become actual, the famine that once was discussed as almost in sight could be postponed a few centuries more, with

fair allowance for an increasing rate of consumption.

While some iron ores mined today contain 60 per cent of iron and a few less than 30 per cent, the day will come when the poorer ores than the poorest of today will come into use. The whole crust of the earth is man's and much of it contains iron. The question is largely one of cost and of supply and demand.

Further, the rate of exhaustion of our iron ores may be retarded by the increasing use of scrap in steel making. Vast stores of steel that has served its day in railroad track, in cars, boilers, machinery and various structural uses, will be finding their way back to the melting furnaces. Then the ores in the ground will be added to by the wearing of iron into dust or rust, which while it disappears is always accumulating.

In a word, the "after-us-the-deluge" treatment of the question of iron ore supply has gone quite out of fashion.

## Taxes and High Costs

IN the admirable statement made by President Coolidge concerning the revenue bill, which he signed with reluctance, he called attention in an impressive way to the fact that the present structure of costs cannot be maintained. He said that to an intelligent observer there are already tendencies apparent which indicate the stress to which the fiscal structure is being put, and he cited particularly the increased cost of capital for new industrial enterprises. He pointed out that during the after-the-war period the other great nations of the world had been disturbed even more than this country and, as they have not been restored to prosperity, the United States has been relieved of much of the world competition, but when the other countries return to full productivity they will become serious rivals of the manufacturers of this country. It is not to be expected that the country will be without periods of depression, and the President is right in saying that this country should be ready, or, as he expressed it, should put its house in order by so shaping its tax system that taxation will not have harmful effects.

These are solemn facts, for a bill which merely reduces taxes without having any scientific



basis and provides no permanent tax reform does not meet the demands of the times. And when in addition it keeps surtaxes high and drives into tax-free securities incomes which should be induced to go into productive industry, it becomes a menace to prosperity. Until Congress realizes that there must be an equitable and scientific reduction of taxes the solution for high costs will not be found.

### Two Great Years in Steel

THE American Iron and Steel Institute has issued the full production statistics for the calendar year 1923, as given at length in last week's issue of THE IRON AGE. The general volume of production was well known at the beginning of this year, from the monthly ingot report, but the individual items show many interesting points. The key figures for 1923 are:

	Gross Tons
Steel ingots .....	43,485,665
Steel castings .....	1,458,031
Total steel.....	44,943,696
Rolled iron.....	955,597
Rolled steel.....	32,321,479
Total rolled.....	33,277,076

The place of 1923 among the years is shown by relatives based on ingot production, with 1913 as 100:

1906.....	75	1915.....	103
1907.....	75	1916.....	137
1908.....	45	1917.....	144
1909.....	77	1918.....	142
1910.....	83	1919.....	111
1911.....	76	1920.....	135
1912.....	100	1921.....	63
1913.....	100	1922.....	114
1914.....	75	1923.....	144

The two greatest years have been 1917 and 1923 and there is little difference between them. On account of the heavy cropping of ingots in 1917 in making shell steel, 1923 with one-third of 1 per cent less ingot production showed 3½ per cent greater production of rolled steel, but as rolled iron lost 49 per cent, the total of rolled material increased by only six-tenths of 1 per cent.

Annual fluctuations in steel production have been so great that long range comparisons are necessary to show the real place of a year, but even long range comparisons are not easy. In making comparisons with pre-war times a common practice has been to take 1913 as standard, or the five or ten years ended with 1913, but the year 1914 was more than half gone before the war started and the stimulating influence was not felt during the remainder of the year. As we have now had five years since the war, it would seem logical to take for comparison three periods, the five years, 1910 to 1914 inclusive, four war years, 1915 to 1918 inclusive, and the five post-war years. The average annual ingot production in the three periods was, respectively, 26,314,000 tons, 39,939,000 tons and 34,371,000 tons.

From the pre-war to the post-war period, the periods being separated by the space of nine years, center to center, there was an increase of 30 per cent in production, while in the four war years production averaged 31 per cent above the mean

of the other two periods. This is definite and contains a minimum of statistical twist.

The nine-year increase is a small one in view of previous performances in steel, but we cannot allow five long years to pass and still refuse to admit that the war retarded our progress, no matter how it did it or how it might have done something else.

As to 1923 alone, the year stood 27 per cent above the average of the five post-war years, and we must see greater concrete evidence of recovery from the war than is now visible to expect 1923 to set a pace for the present and nearby years.

### Loans and Foreign Trade

A STATISTICAL fact in our history which should give American business men and bankers food for thought at the present time is this, that in the quarter century ended June 30, 1873, the merchandise imports of the United States exceeded the exports by about \$1,550,000,000. The average rate was \$62,000,000 a year, with only two years, 1858 and 1862, in which the exports exceeded the imports, and then the difference was small. In the quarter century the imports exceeded the exports by 23 per cent. The average division was approximately 55 imports to 45 exports.

During the same 25 years the transactions of the New York clearing house increased sevenfold, while the mileage of railroads increased twelvefold.

As to what occurred after the period, there was the Jay Cooke panic and a period of five years of severe industrial depression, during which time our exports greatly exceeded our imports.

The United States was in process of development. It was what Europe could have called "a backward nation," in that it needed to come forward, and it did so with the aid of foreign capital, for it was chiefly an influx of foreign capital that permitted us to import so much more merchandise than we exported.

Now that we have got forward, the natural thing for us to do is to invest abroad, thereby securing annual revenue, by way of interest, and promoting foreign trade. It is the usual stipulation of England and other countries when making loans abroad that the proceeds be spent in the lending country. It is a question whether in general the stipulation is absolutely necessary, for the natural trend is that way.

The fact that private American foreign loans in the past five years total four billion dollars is not proof that we are carrying out aggressively the policy of loaning abroad either for the purpose of direct gain or for the purpose of stimulating foreign trade. The circumstances have been so strongly conducive to these operations that what has occurred looks more like a sluggish yielding to pressure than an energetic and enterprising aggressive. As a nation we are not by nature or training inclined toward this kind of activity. Our tendency has been to exercise our aptitudes at home.

If it is a fact, as some insist, that as a people

we are not thinking hard enough in these post-war years, it is the first fact we ought to face, thereupon taking steps to mend our ways. It is very easy to lend money, but it is not nearly so easy to lend money judiciously and safely. Much investigation, much collecting and weighing of facts, much hard work, are necessary.

The development of foreign trade by the mere process of effecting sales and carrying out the sales to the satisfaction of the buyer requires hard work, much gathering of information as to the needs of the foreign buyer. In that respect we are known to be decidedly deficient. Too many sellers instead of studying the needs of the foreign buyer have depended on the easier course of letting the foreign buyer study our catalogs. To develop foreign trade may be to develop demand for our capital on the part of trustworthy borrowers, whereby the best loans can be made. Thus the two should go hand in hand.

### The March of Electric Steel

A NOTABLE record was made by the American electric steel industry in 1923, as shown in the official statistics just published. In steel castings the total of 235,958 gross tons from electric furnaces may stand unsurpassed for some years. This is 53 per cent above the best previous record, that of 1920. In 1913, electric steel castings constituted less than 1 per cent of the total output. In ten years this industry has expanded more than 25 fold.

A new mark was set also in alloy steel castings from electric furnaces—29,054 tons, against 17,760 tons in 1922, an increase of 64 per cent, emphasizing the tendency of heat-treated alloy steel castings to replace forgings.

Taking the electric steel industry as a whole, the 1923 production of 515,872 tons of ingots and castings exceeds any war or peace time output,

but the margin is small over the 511,364 tons of 1918. The electric steel ingot production last year was 279,914 tons, or 0.64 per cent of all steel ingots. This compares with 0.55 per cent in 1922, 0.85 per cent in 1920 and 0.93 per cent in 1918.

The advantages of the electric furnace in foundry operations are strongly emphasized by the performance of last year, in both plain carbon and alloy steel castings. The electric steel industry, it appears, has come to a position in this country quite in line with the long standing leadership attained in the high-tonnage processes. Meanwhile, in some European countries in which there was a great electrical steel development in war time, Great Britain in particular, the movement in electric steel in recent years has been decidedly retrograde.

AMERICAN authors of technical papers may well take to heart a statement of Prof. Thomas Turner in his recent presidential address before the Institute of Metals (British). Discussing the present cost of society publications, he said in part:

One method of meeting the difficulty [papers of too great length] is by a more rigid censorship and by the adoption of a less diffuse style in writing. \* \* \* The ability to express important facts in simple language is an indication of experience and of that clearness of thought which enables the writers to seize on all that is essential and to strip off what is unnecessary. In many cases the permanent value of a communication varies inversely as the square of its length.

A new application of the old law of inverse squares. In these days of many conventions ambitious authors, experienced and otherwise, would do well to keep this terse statement prominently before them. To some recent conventions and some yet to be held the suggestion is eminently applicable.

## CORRESPONDENCE

### Early Displacement of the Blast Furnace Improbable

To the Editor:—An article in THE IRON AGE of April 3 by J. Kent Smith, Sheffield, suggests the practicability of low temperature reduction of iron ore on a commercial scale and concludes: "It may confidently be prophesied that the next ten years will see a very general adoption of the commercial reduction of iron from its ores at low temperature."

Not without honoring the confident prophet of a return to the times when iron was reduced at low temperatures, we at least can scrutinize the statement that such a return will be made within the next ten years. Apart from theoretical considerations of the metallurgical aspects, the usurpation of the position held by the modern blast furnace seems remote. Though it may be pointed out that according to the simplest formula for the reduction of pure ferric oxide by pure carbon, ignoring the effect of reversible reactions, only 4.84 cwt. of carbon is necessary to make a ton of iron, and that a modern blast furnace with a 50 per cent ore uses say 18 to 20 cwt. of coke per ton of pig, there appears some justification for a charge against the blast furnace of thermal inefficiency, even with the

allowance of over 4 cwt. of coke which provides motive power by means of the surplus gases.

A graver charge of the same nature can rightly be leveled against prime movers, but no confident prophet has appeared in this connection. The best lines of advance in both cases seems to be made in perfecting the existing appliances. In any case a radical alteration of existing methods takes usually more than ten years to become commercially safe.

Consider the difficulties before the rival of the blast furnace. It was stated that 1500 lb. of low grade fuel was required for the low temperature process against 2000 lb. of coke for the blast furnace. The difference in cost at today's prices in the author's district is, say, 13s [\$2.80], on the face of it a large amount compared with the selling price of the semi-finished product, but a sum that is soon frittered away in extra labor charges; repairs and maintenance; works, general and capital charges; depreciation; in small increases in "off" grades, and in providing motive power.

By deducting the present prices of ore from the selling price of the pig iron, it is found today that in different parts of this country there is a sum of from 50s to 70s [\$10.80 to \$15.12] depending on the iron ore used, available to meet all these charges, plus the cost of all other raw materials used, plus profits. It is extraordinarily small, and any process, low temperature or otherwise, will need very skillful planning and operation to improve upon it. In detail, is a lower labor cost suggested than 3s to 3s 6d [65c. to 76c.]



per ton, the approximate figure for a good blast furnace plant in this country today, or a bill for repairs and maintenance of 2s 6d [54c.]?

Even comparatively lower priced commercial products such as coke or cement are on a comparative basis not less expensive to produce as far as these items are concerned. Depreciation, too, of 1s 6d [33c.] per ton, a figure on the high side for blast furnaces, will only with difficulty be improved upon. Until specific examples are forthcoming, or specific references to such commercial considerations be made, a reasonable skepticism will be felt of advantages claimed for the economic employment of radically altered methods.

But apart from commercial considerations, difficulties will arise on account of the impurities always associated with iron ore. Sulphides, silicides and phosphides of iron exist at low temperatures, and hence no advantages of a reduction of these impurities to any marked extent can be claimed. It is anticipated that the present difficulties due to the presence of sulphur will be enhanced. Indeed, no claim was put forward of improvements in the deleterious impurity content, and until further information is forthcoming of the control of these elements, it seems probable that a large proportion of the ores in use at present will not be available for the suggested process. The statement as to a low temperature reduction auxiliary plant being used for dead fine ore is invalidated on this account. Sintering, on the other hand, is a proved theoretical and commercial success.

In spite of the author's remarks as to the increase of our knowledge of the utilization of powdered fuel, essentially low grade and of irregular chemical analysis, it is doubtful if our knowledge is sufficiently extensive to enable this material to be used as a reducing agent reasonably definite and regular in its chemical action. As a source of heat only, it is well known that electric furnaces, producer-fired open-hearth or kilns, externally heated retorts, even with the most effective regenerative appliances, are very much more wasteful of heat than blast furnaces. In any case a blast furnace is a low temperature reducing appliance as far as its shaft is concerned, as the late J. E. Johnson took some pains to emphasize.

To summarize briefly: The advantages to be expected are the gain in using low grade fuel (which incidentally will respond in price to any increased demand) and a gain due to the smaller amount of heat required, represented by the difference between the melting temperature and the low temperature reduction point. The disadvantages are less control and the use of more inefficient apparatus. The question of capital outlay, which is stated to be smaller, was probably not referred to an equivalent output basis. Taking into consideration the nature of the raw material worked upon, the bare essential efforts that have to be made in producing the semi-finished product, the margin for a reduction in costs is so remarkably small (and it may be said in passing that the margin would be smaller in this country if plants were more generally up to date) as to make the credibility of economies doubtful without the fullest investigation into the practical working for a reasonably long period.

Though obviously no manufacturing process can be stated to have reached its final development, it is well to realize as accurately as possible the obstacles that have to be surmounted, also the extent to which a suggested process is able to compete with present conditions, before any new departure is made, involving the expenditure of capital that could be employed more usefully along safer lines—in particular, the remodeling of existing blast furnace plants.

RICHARD MILES.

Sheffield, England, May 20.

### Man Element in Industry

To the Editor: The letter, "Man Element in Industry," by Jn. Jo. Swan, in your June 5 issue, struck a most responsive chord in me.

For the past twenty-five years I have been closely connected in executive capacity, principally in large production enterprises in various parts of the country,

and while I have read many of the Taylor studies and have profited by some, I still hold (by reason of results obtained) that the best results from a production standpoint, as well as general plant morale, etc., are gained in the man to man method, that is, an executive must sell himself to his men (whether they recognize this point or not) just as he must sell himself to his president or board of directors, etc.

The problem is purely a human one, the best results, generally speaking, being obtained by flat, plain, square, honest dealings in all relations with one's force at all times. THE IRON AGE touched on this matter on its cover page, Jan. 5, 1924, in which it said in part: "Management problems grow harder. More labor-displacing machinery is offered as the solution, and that will help; but are those not nearer right who look more to human engineering to bring the answer?"

J. P. KARCH,

General superintendent, Calorizing Co.,  
PITTSBURGH, June 7.

The Nevada Consolidated Copper Co., McGill, Nev., has purchased a 1½-ton electric furnace from the Pittsburgh Electric Furnace Corporation for melting gray iron and steel. The Ross-Meehan Foundries, Chattanooga, Tenn., have bought from the same company a 3-ton electric unit for their new steel foundry.

### The Iron Age and Its Readers

NEW subscribers are being added to the list of IRON AGE readers in large numbers—so large, in fact, as to be particularly worthy of note. Such increased interest is taken as proof that THE IRON AGE is extending its prestige, and with it have come strong expressions of appreciation. These lead us to say that all editorial plans look to an increase of our reader service, and the fact that the times are trying is only an added incentive.

The responses made to recent IRON AGE editorials have been highly gratifying, especially those called out by the broad discussion of economic questions bearing directly upon the conduct of the metal-working industries. In this connection we select for special mention titles taken from the last six issues—May 1 to June 5 inclusive:

Steel Earnings and Wages.  
Scrap as a Barometer.  
Need of Better Thinking.  
The Government in Business.  
Present Economic Situation.  
Less Fit Mines Must Go.  
Steel Production and Orders.  
Information on National Wealth.  
Popular Economic Fallacies.  
Business Forecasting.  
Automobiles and Scrap.  
After a German Settlement, What?  
A Socialistic Tax Bill.  
Science in Production and Sales.

To this list might be added the authoritative and comprehensive study by a well known economist answering the question: "Did the War Increase Our National Wealth?"

The 376 reading pages in the five issues of May represent an annual rate of no less than 3900 pages—a volume quite without parallel among journals of industry.

# European Plants Showing More Activity

British Business Slow—Ruhr Works Starting Up After  
Coal Stoppage—Belgium Making Considerable Steel  
—Russian Situation Precarious

(By Cable)

LONDON, ENGLAND, June 10.

Pig iron is weak, but all markets are quiet, owing to the holiday (Whitsuntide). The Barrow Hematite Steel Co., Barrow-in-Furness, is relighting two furnaces this week and the steel works is to be restarted in about ten days.

Foreign ore is dull. Bilbao Rubio is held nominally at 23s. 6d. (\$5.05) c.i.f. Tees.

Finished steel is quiet, with few substantial inquiries except for certain special branches of engineering and constructional departments, which are busy on current orders.

## European Continent

Continental position is unchanged. The works are not keen sellers at current prices and buyers are disinclined to commit themselves.

Merchant bars have been sold, by merchants, at £7 7s. 6d (1.42c. per lb.) cost and freight to India.

In the Ruhr many plants are restarting, after having closed owing to the recent coal stoppage. The Krupps are nearly normal again. The Dortmunder Union have blown in two blast furnaces. The Bochumer Verein is working normally, as also is the Phoenix Aktien Gesellschaft. The Hoesch Eisen und Stahlwerk, Dortmund, Westphalia, is to resume after the Whitsuntide holidays.

## Sheets and Tin Plate

Tin plate demand is reviving at the recent new level, but little actual important business has developed to date.

Galvanized sheets are quiet after the recent spurt in buying and subsequent rise in price. Makers now are full to the end of August.

Black sheets in small lots are selling. Japanese,

specifications, 6 x 3, 13's, 107 lb., are held at £18 5s. (3.50c. per lb.) f.o.b. Other gages are in fair demand.

## Little Active Effort to Obtain Business—Buying Limited to Immediate Needs

LONDON, ENGLAND, May 29.—Conditions in the iron and steel markets during the past two weeks have been somewhat subject to the influences of the Continental position and trade in general is, in consequence, rather at a standstill. Pig iron makers are not too well off for orders, but there is a general reluctance, particularly on the part of export consumers, to commit themselves. The fresh depreciation in the franc exchange rate has made Continental material again competitive, but at the same time supplies from that side are by no means regular. Producers here, therefore, have been obliged to make further reductions and while the market continues in such a doubtful state home consumers naturally hold off as long as possible. No. 3 Cleveland is now down to 91s., and probably this price would be shaded for a substantial parcel. Hematite also is lower; East Coast mixed numbers can be obtained at 98s.

## Finished Material Dull

As regards finished iron and steel, the position here is somewhat more complicated than is the case of pig iron. Makers generally are wanting orders, but show practically no inclination to attract business, and maintain the prices which have been ruling for some time past. The export demand, as a result, is poor and in the home trade buying is limited to covering immediate requirements. On the other hand, however, certain of the plants are busy on shipbuilding orders and railroad reconstruction contracts, but the time will come when these will be exhausted, and new orders be required.

Offerings of Continental material at comparatively cheap prices have been made from time to time, but consumers generally are reluctant to commit themselves, owing to uncertainty as to deliveries, while the

British and Continental prices per gross ton, except where otherwise stated, f.o.b. makers' works, with American equivalent figured at \$4.30 per £1, as follows:

Durham coke, delivered	£1 8s.	\$6.02
Bilbao Rubio ore†.....	1 4	5.16
Cleveland No. 1 foundry	4 15	20.43
Cleveland No. 3 foundry	4 10	19.35
Cleveland No. 4 foundry	4 9	19.14
Cleveland No. 4 forge..	4 8	18.92
Cleveland basic .....	4 11½	19.68
East Coast mixed.....	4 18	21.17
East Coast hematite....	4 19 to £5 0s.	21.29 to \$21.50
Ferromanganese .....	17 0	73.10
Rails, 60 lb. and up....	8 10 to 9 10	36.55 to 40.85
Billets .....	8 0 to 8 5	34.40 to 35.48
Sheet and tin plate bars,		
Welsh .....	8 12½	37.09
Tin plates, base box...	1 2½ to 1 3	4.87 to 4.95
Ship plates .....	9 5 to 9 15	1.78 to 1.87
Boiler plates .....	13 0 to 13 10	2.50 to 2.59
Tees .....	9 7½ to 9 17½	1.80 to 1.90
Channels .....	8 12½ to 9 2½	1.66 to 1.75
Beams .....	8 7½ to 8 17½	1.61 to 1.70
Round bars, ½ to 3 in.	9 17½ to 10 7½	1.90 to 1.99
Galvanized sheets, 24 g.	17 15 upward	3.41
Black sheets, 24 gage..	13 0	2.50
Black sheets, Japanese		
specifications .....	15 5	2.93
Steel hoops .....	12 10 & 12 15*	2.40 & 2.45*
Cold rolled steel strip,		
20 gage .....	17 2½	3.29

\*Export price. †Ex-ship, Tees, nominal.

## Continental Prices, All F. O. B. Channel Ports (Nominal)

Foundry pig iron:		
Belgium .....	£4 5s.	\$18.28
France .....	4 5	18.28
Luxemburg .....	4 5	18.28
Billets:		
Belgium .....	6 0	25.80
France .....	6 0	25.80
Merchant bars:		C. per Lb.
Belgium .....	6 15	1.30
Luxemburg .....	6 15	1.30
France .....	6 15	1.30
Joists (beams):		
Belgium .....	6 15	1.30
Luxemburg .....	6 15	1.30
France .....	6 15	1.30
Angles:		
Belgium .....	8 0 to £8 5s.	1.54 to 1.58
½-in. plates:		
Belgium .....	8 0	1.54
Germany .....	8 0	1.54
¾-in. plates:		
Luxemburg .....	8 0	1.54
Belgium .....	8 0	1.54



rapid changes which take place in the various labor positions on the other side, and the vagaries of the Continental exchanges causing sterling values to jump about, are factors tending to withhold purchasing.

The first of the three new oil-burning steamers, each of 20,000 tons, which are added to the fleet of the Orient Line, was recently launched at Barrow. Sir Allan Anderson of the Orient Line, on this occasion, stated that there were signs that in a short time the tide would turn in the shipbuilding industry, making the present moment propitious for placing orders for new tonnage.

## RUSSIAN IRON AND STEEL

### Lack of Capital and High Costs Hamper Production—January Pig Iron, 48,200 Tons; Steel, 74,800 Tons

BERLIN, GERMANY, May 19.—Although the Soviet Russian Government professed to stabilize its currency in February this year, and in fact replaced new issues of paper rubles with treasury notes theoretically interchangeable for the gold-secured "tchervontsi," the general economic condition has not improved. A credit crisis, as in Germany, followed the attempt at currency reform; and this has been followed by a selling crisis, so that for the first time in years necessary goods lie unsold.

The coal, iron and iron consuming branches have been badly hit. Before the war the iron and steel industries had an estimated working capital of 740,000,000 gold rubles (\$381,000,000). In 1923 the working capital was put at between 98,000,000 and 120,000,000 rubles (\$50,000,000 and \$62,000,000). The circulation of working capital in the iron industry is particularly slow; and it is officially reported that, to finance iron production of value of 278,000,000 rubles (\$143,000,000) in the business year, October, 1923, to September, 1924, at least 230,000,000 rubles (\$118,000,000) are needed.

The State aims at doing this by making advance payments on official orders and by loans from the State Bank, but neither the State nor the bank has sufficient money. At present the State is paying in advance only 15 per cent of the price, instead of the former 25 per cent; and State orders for the business year have been reduced from 97,000,000 to 48,000,000 rubles. The trusted state metal concerns declare that they have not enough working capital to carry out even the reduced orders.

#### State Ownership and Operation

Despite the leases and concessions granted to private individuals under the "NEP" (New Economic Policy), and despite the greater tolerance shown of late to purely private initiative, the campaign by a strong minority of communist stalwarts in favor of exclusive State ownership continues and even gains successes. One such success is the creation last month of a Commissariat (ministry) for Internal Trade, the aim of which is to emphasize the State's authority and the power of the cooperatives in home business, by analogy with the Commissariat for Foreign Trade, which claims a complete export and import monopoly. Nevertheless private trading increases. On the Moscow Commodities Exchange the State's share in the turnover fell from 40 per cent in September, 1923, to 17½ per cent in February, 1924, and the share of private firms rose from 27 to 58 per cent. The *Torgovo-Promyshlennaya Gazeta* states that, in the business year 1922-23, 64 per cent of the capital engaged in all home trade was private, and that 83 per cent of capital in retail trade was private.

State industry and trade are severely condemned by outspoken bolsheviks. Commissary Piatakoff, speaking at a recent meeting of the Council of Labor and Defense, stated that the profit and loss accounts of the State trusts are "pure bluff" and added that "the only way out of the economic crisis is to abolish State monopolies and to restore full freedom in trade and industry." Working-class representatives lately issued a declaration that "State industry can succeed only if it produces more efficiently and cheaply than private industry, which until now is far from being the case."

The Electro-Machine Trust in the last business year lost 511,000 gold rubles. The State Bank in April reported to the Supreme Council of Industry that of all the big trusts (about 30) eight had met their liabilities to the bank to the extent of 30 per cent, and eleven to the extent of 20 to 25 per cent, while the others had not only not paid back their debts when due, but had defaulted on the interest.

#### Unemployment and Production

The last official report shows 120,000 unemployed in Moscow and about 780,000 in all European Russia. The number of workers in 4212 shops owned or controlled by the State was 1,171,831. In the metal industries were 200,016 men; in coal, 168,293 men. The selling crisis is very serious. Though industrial production increased considerably in 1923, it remained a mere fraction of that before the war, yet this fraction cannot be sold. Of unsalable Donetz coal, 150,000,000 puds (2,410,000 gross tons) had accumulated by April 1. English coal of the same quality was delivered c.i.f. Petrograd at 24 gold kopecks a pud (\$7.50 per gross ton); Donetz coal ex-mine costs 25 kopecks, and to Petrograd a further 15k. freight and 2½k. for unloading.

Large quantities of manufactured goods, particularly farm machinery, remain unsold. Commodities exchanges, those of Kieff and Charkow excepted, report a rapid decline in the value of turnover. In Moscow in April the turnover was 20 per cent lower than in March, and in March 34 per cent lower than in February. Prices of all iron and steel goods are very high, after being low up to June, 1923. The last report shows pig iron per pud (36 lb.) costing 1.72 gold rubles (\$55.11 per gross ton), against 0.56 ruble (\$17.95) in 1913, and nails, wire and other goods in the same class an average of 7.22 gold rubles per pud, against 2.33 rubles (10.33c. per lb., against 3.33c.).

Coal production in the summer months is curtailed through departure of miners to their farms for field work. In May to August this year the estimated decline from this cause will be 15 per cent. Donetz coal production in the calendar year 1923 was 577,000,000 puds (9,273,000 gross tons), against 390,000,000 puds (6,267,000 tons) in 1922, a minimum of 273,000,000 puds (4,388,000 tons) in 1920 and 1,531,000,000 puds (24,600,000 tons) in 1913. Of the 1923 figures 421,000,000 puds (6,766,000 tons) were produced by State concerns. These are gross figures. Consumption on the spot by the mines is about 15 per cent, as against 8 per cent before the war. In the past spring the coal output began to decline. After being (in all Russia) almost the same in February as in January, in March it was 6 per cent less than in February.

#### Iron and Steel Output

The position with iron and steel is more favorable. In January, 1924, 24 blast furnaces were working, of which 14 were in the Urals, against 18 in October, 1923. In the first quarter of the business year 1923-24 (Oct. 1 to Dec. 31, 1923) pig iron production, as compared with the same period of the preceding business year, was:

First Quarter	1923-1924		1922-1923	
	Thousands of Puds	Gross Tons	Thousands of Puds	Gross Tons
Urals .....	3,204	51,500	1,671	26,900
South Russia .....	4,860	78,100	1,477	23,700
Central Russia .....	635	10,200	470	7,550
	8,699	139,800	3,618	58,150

Pig iron production increased particularly rapid in the south, where before the war it constituted 74 per cent of the whole, but in 1922-23 only 37 per cent. Steel production in the same periods was:

First Quarter	1923-1924		1922-1923	
	Thousands of Puds	Gross Tons	Thousands of Puds	Gross Tons
Urals .....	4,576	73,500	3,094	49,700
South Russia .....	6,450	103,700	1,761	28,300
Central Russia .....	4,190	67,300	2,052	33,000
	15,216	244,500	6,907	111,000

#### Rolling mill products:

	1923-1924		1922-1923	
	Thousands of Puds	Gross Tons	Thousands of Puds	Gross Tons
Urals .....	3,113	50,000	1,816	29,200
South Russia .....	4,483	72,100	1,520	24,400
Central Russia .....	2,912	46,800	1,600	25,700
	10,508	168,900	4,936	79,300

Pig iron production in January, 1924, was 3,000,000

puds (48,200 gross tons), or a little above the average of the preceding three months, of steel 4,653,000 puds (74,800 tons) and of rolling mill products 2,943,000 puds (47,300 tons). In February pig and steel production was approximately the same as in January, that of rolling mill products increased 25 per cent. In March pig and steel production again increased slightly. Of the whole production of iron, steel and wares in the current business year, 37 per cent is required by the railroads, 9.5 per cent by the war commissariat, 26.5 per cent by the big industries (nationalized and private), and 27 per cent by small consumers.

The Soviet official press is talking of inviting English and American capital to revive the manganese ore industry. In the ten pre-war years Russia produced an average of 800,000 tons out of an estimated world production of 2,000,000 tons and in 1913 her production in the Chiatouri (Georgia) mines was 965,000 tons, and 250,000 tons in the Nikopolsi mines.

#### Machinery and Electrification

Russia's program for purchase of farm machinery in 1924 embraces a total of 27,000,000 gold rubles (\$14,000,000), of which machines for 17,379,125 rubles (\$9,000,000) are to be produced at home and the rest imported. Only such machines as Russia cannot herself produce will be imported. The native locomotive industry is languishing. In 1922-23 only 96 locomotives were built, and recent orders for 1923-24 were partly withdrawn. The Russian press continues to write much of plans for general electrification.

According to the official plan, the whole republic was to be divided into four "central electrification districts": the Northern, the Central-Industrial, the Don and the Ural. The aim was to utilize low-quality coal and turf, which do not stand long-distance transport, and to avoid the necessity of importing English coal, as was done before the war. Of three power stations which were to supply the Northern district, including Petrograd, only one, the Krassni Oktiabr (Red October!) station, with 10,000 kw., is completed. The Svirsch power station, which is to be of 100,000 hp. and to supply Petrograd, is under construction. In the Central district only the Kashira station is working; in the Don district nothing has been done; in the Ural district the construction of a power station at the Kiseloff coal mines is nearly completed.

#### German Trading Enterprises

Germany continues to show great interest in Russian trade. Over sixty German concerns have obtained permits to establish "consignment depots" on Russian soil, with the aim of displaying and selling goods which have been sent to Russia without being ordered in advance.

The Berlin firm of Rawack und Grünfeld has made a contract with the South Russian Ore Trust to deliver Russian iron ore and manganese. Russian Krivoi-Rog ore is being delivered to Poland. Negotiations for direct Russo-German railroad freight traffic are to begin in Moscow this month.

## BELGIAN INDUSTRY DOUBTFUL

### German Competition Active—Production of Pig Iron and Steel Has Been Heavy

BERLIN, GERMANY, May 26.—After a period of boom and recovery the Belgian steel and iron industries are in a doubtful condition. The boom of 1923 was caused at first by the suspension of German production, due to the Ruhr troubles, and later by the heavy franc exchange fall. The uncertainty now prevailing began with the revival of the franc, which threw Belgian selling prices above German and continued, despite price-cutting, owing to the unsettling effect of the French elections and of M. Poincaré's resignation.

#### Pig Iron and Steel in Heavy Volume

In 1923 Belgium's pig iron and steel production nearly reached pre-war level, and her coal and coke production and output of finished iron and steel goods exceeded pre-war level. The official report (provisional for 1923) shows (metric tons):

	1913	1921	1922	1923
Coal .....	22,841,590	21,750,410	21,208,500	22,916,070
Coke .....	3,523,000	1,402,610	2,849,884	4,156,700
Iron ore .....	150,450	59,491	63,200	{ not reported
Pig iron .....	2,484,690	872,010	1,613,160	2,188,130
Steel .....	2,466,630	764,150	1,165,140	2,285,910
Finished goods	1,857,860	830,030	1,346,550	1,943,388

In the first four months of this year the recovery has continued. Average coal production has been above the monthly average of 1913 or of any post-war year, but it has slightly declined from month to month, and there also has been a decline in finished goods, while pig iron and steel production have continued to increase. The number of employees is higher than before the war and, though only 47 blast furnaces are working as against 54 in 1913, the present furnaces are better equipped and have greater capacity. The movement in the separate months of 1924, with, for comparison the pre-war monthly averages, is shown in the following table:

	Coal	Pig Iron	Steel	Finished Goods
1913, monthly average..	1,903,000	207,058	205,500	155,000
1924, January .....	2,183,000	208,980	224,670	200,900
February .....	2,112,000	205,930	219,160	192,820
March .....	2,108,000	230,490	234,170	206,470
April .....	2,048,000	239,530	233,630	195,670

#### Fuel Imports

Belgium has of late heavily increased her coal and coke imports from Germany, which nearly ceased last

year, owing to the Ruhr passive resistance; and though her imports from England have fallen off, the total imports have been more than 60 per cent higher than in the same period of 1923. In the first quarter of 1924 were imported 2,507,000 metric tons of coal, of which 1,213,000 tons were from Germany, against 1,505,000 tons (141,000 tons from Germany) in the first quarter of 1923. Imports from England were 901,000 tons against 1,074,000 tons. Coke imports in the same quarter were 573,000 tons, of which 442,000 tons from Germany, against 227,100 tons, of which 189,000 tons from Germany, in the same quarter of 1923. Counting the ton of coke at equal to 1300 kg. (2866 lb.) of coal and the ton of briquettes at equal to 900 kg. (1985 lb.) of coal, the total fuel import in the first quarter of 1924 was 3,298,700 tons, against 1,805,500 tons in the same quarter of 1923.

## LUXEMBURG IRON AND STEEL

### Dullness Increases, with Exports Hampered by High Railroad Charges

LUXEMBURG, May 25.—April has seen an accentuation of the heaviness which has held the iron and steel market from the beginning of March and the repercussion of the recovery of the franc has had a double effect: the diminution of the sales on one hand, and the fall of prices on the other. We have noticed, besides, the cancellation of orders based on speculation on the fall of the franc and the markets accustomed to deal in francs have shown an extreme reserve, anticipating a continuation of the recovery of French currency. Our industrials, whose order-books were still well filled at the beginning of the month, were able to maintain relatively high prices in francs, but the fall was bound to come with the loss of orders and the increase of German competition on foreign markets.

Curtailment of credits in Germany seems to have deprived the German market of its buying capacity for several months, and the suppression of the allowance granted previously by the German Government for the export of goods free of custom duties, on the terms of the Versailles Treaty, has only made the crisis worse.

#### Exports Hampered

Our foreign commerce also had been greatly lessened by the increase of the Belgian railroad tariffs which,



in some cases, meant extra charges of 25 per cent. In consequence of this, the producers had been obliged to lower their selling prices so as not to increase their cost of production by reducing the output. Therefore the furnaces could remain on blast but their activity slackened. But it may be noted that since about May 15 the Belgian State Railroads have reduced their tariffs somewhat on account of the claims of the Luxembourg industrials.

The situation has noticeably improved in the past two weeks, that is, since the further decline of the franc. A large number of buyers are back on the market again, and the plants in France and even in Antwerp—as the Germans, owing to the Ruhr crisis, cannot maintain any longer the very low prices they have been offering—have taken important orders which have considerably increased the volume of trade. Unfortunately, the quotations made in francs are unremunerative, as may be seen by the figures:

	Sterling*	Belgian France*	American†
Chill-cast No. 3 pig iron .....		400 to 420	\$18.66 to \$19.60
Billets .....	£5 17s. 6d.	556	25.90
Large rods .....	6 2 6	580	27.06
Small rods .....	8 7 6	793	37.00
Beams .....	6 12 6	627	1.31c. per lb.
Steel bars .....	6 15 0	639	1.33c. per lb.
Heavy sheets .....	7 15 0	734	1.53c. per lb.

\*Per metric ton. †Per gross ton, or cents per pound.

### Iron and Steel Production of Luxembourg

LUXEMBURG, May 25.—April production was as follows: Basic iron, 179,511 tons; chill-cast iron, 5662 tons; affnage iron, 450 tons; total, 185,623 tons. Basic steel, 153,373 tons; open-hearth steel, 2990 tons; made by the electric furnace, 505 tons; total, 156,868 tons.

The number of furnaces active in the Grand Duchy at end of April was: Arbed:—All 6 at Esch; all 6 at Dudelange; 2 of the 3 at Dommeldange. Terres Rouges:—All 6 at Belval; Esch closed down. Hadir:—8 of the 10 at Differdange; Rumelange closed down. Rodange, all 5; Steinfort, all 3.

### Large Decrease in Steel Corporation's Orders in May

Unfilled business on the books of the United States Steel Corporation as of May 31 aggregated 3,628,089 gross tons or 580,358 tons less than was reported for April 30. It is the smallest amount reported since Oct. 31, 1914, when the unfilled tonnage was 3,461,097 tons. In April the unfilled orders decreased 574,360 tons, following a decrease in March of 130,094 tons. In January and February, this year, there were increases of 353,090 tons and 114,472 tons respectively. A year ago the unfilled business amounted to 6,981,351 tons or 3,353,262 tons larger than on May 31 last. Following is the unfilled tonnage as reported:

	1924	1923	1922
January .....	4,798,429	6,910,776	4,241,678
February .....	4,912,901	7,283,989	4,141,069
March .....	4,782,807	7,403,332	4,494,148
April .....	4,208,447	7,288,509	5,096,917
May .....	3,628,089	6,981,351	5,252,228
June .....		6,386,261	5,635,531
July .....		5,910,763	5,776,161
August .....		5,414,663	5,950,105
September .....		5,035,750	6,691,607
October .....		4,672,825	6,902,287
November .....		4,368,584	6,840,242
December .....		4,445,339	6,745,703

The May figures compare with the lowest on record of 2,605,747 tons on Dec. 31, 1910.

At the annual meeting of the Cleveland chapter of the American Society for Steel Treating, June 6, H. A. Schwartz, National Malleable & Steel Castings Co., was elected chairman for the ensuing year. H. A. Smith, Bourne-Fuller Co., was named as vice-chairman and A. S. Townsend of the Cleveland Twist Drill Co., was chosen secretary. J. V. Emmons, metallurgist of the latter company, presented a paper on "Tool Hardening Problems."

## EXPORT INQUIRY LIGHT

### Rails and Boiler Tubes for Japan—Japan Increasing Tin Plate Production—Importers Await Cotton Tie Market Opening

NEW YORK, June 10.—Practically no export business of importance is reported. The Chinese market has quieted down to even less than what has lately been considered normal business and Japanese merchant inquiries have almost ceased. An inquiry for five miles of 60-lb. rails is noted from a Japanese railroad. The South Manchuria Railway Co. asked for 400 locomotive boiler tubes, bids opening June 6. American bidders are reported to have quoted about 54c. per ft. c.i.f. Dairen, but in view of the low quotations recently made by British sellers to American consumers of boiler tubes, exporters are inclined to believe the business may go to a British mill. Recent quotations on a small tonnage of 3-in. pressure pipe to a user in Valparaiso, Chile, have resulted in British prices considerably below the American domestic market on water pipe. It is believed that importation into the American market could be arranged at \$10 to \$15 per ton below the current prices here.

Importers usually active at this time in the sale of cotton ties are still withholding quotations awaiting the opening of the cotton tie market, which is now several weeks later than usual. Prospective sellers of foreign ties are inclined to believe that the delay in establishing a price this year may be partly because of the weakness of the steel market but is also a result of an effort by American mills to delay the buying season until it is too late for foreign sellers to make delivery. The quiet state of European markets, particularly the British, importers claim, will permit of earlier deliveries than usual. One importer, who recently quoted \$1.44½ per bundle, c.i.f., is reported to have since raised his quotation to \$1.47 per bundle.

### Japanese Sheet and Tin Plate Manufacturers

A recent report of Henry B. Hitchcock, American consul at Nagasaki, Japan, throws some light on the progress being made by Japanese industry in producing the finished products which to a considerable extent compose the iron and steel trade of the United States with Japan. The first sales of tin plate from the Japanese Yawata Iron Works (Imperial Government works) were made in July, 1923, says the report. From then to the end of March, 1924, 15,760 boxes were marketed. Of this quantity, 65 per cent was of the first grade, 34 per cent of the second, and less than 1 per cent of the third.

During the same period 145 tons of black sheets were sold. For the ensuing fiscal year it is planned to roll 10,000 tons of black sheets, of which 7000 to 8000 tons will be plated with tin. The installation of new and up-to-date plating and rolling machinery, ordered from the United States, should be completed by the end of July. While it would be possible to find at once a market in Japan for a larger quantity of tin plate than it is planned to produce, the necessity of training labor for this special production involves too many risks to attempt more at present.

The Bureau of Foreign and Domestic Commerce has the specifications issued by a municipality in Mexico which is installing a water plant and drainage system. These include in addition to about 19 miles of 2-in. to 20-in. pipe and mains, 2 centrifugal pumps, 8-cu. meters per minute; a 4,000,000 liter (1,000,000 gal.) storage tank; a sand filter with capacity of 1,000,000 gal. per day; and a reinforced concrete tank of 1,000,000 gal. capacity. The bureau is also in possession of details on an inquiry by a Canadian city for steam rollers, automobile trucks and sweepers and concrete mixers for road work.

The National Association of Brass Manufacturers will hold a general meeting on June 13 at the Colonial Hotel, Mt. Clemens, Mich.

# Iron and Steel Markets

## CONSUMPTION FALLS OFF

### Production Close to a Stand Still in Pig Iron and Steel

#### Finished Steel Prices Show Less Change—Oil Tank Work Larger

So far as the week's developments can be measured, they indicate a somewhat increased rate of decline in steel consumption and but little further falling off in steel works output. In spots, buying of finished steel has been larger, because some consumers' supplies were running out; also the moderate activity of the past two weeks in pig iron has kept up, generally at the further expense of prices.

The Steel Corporation's report of 583,000 tons falling off in unfilled orders in May and the statistics showing 24 per cent decline in daily rate of steel ingot production last month, as compared with April, were in line with the market news of the past few weeks. The steel trade is little inclined to make them a basis of prophecy. But the fact that the week brought no change in the number of active blast furnaces in the Pittsburgh and nearby districts, and the loss of but one furnace in the Chicago district is considered significant, after the unprecedented curtailment of May.

At the same time more emphasis is put upon the tendency of prices to hold to the levels of recent weeks. As operations have dropped below a 50 per cent rate, costs have risen materially and at the same time buyers are not pressing hard for concessions on their small-lot purchases. But any order out of the ordinary discloses real flexibility.

That the policy of the larger producers is still that of meeting competition in major products when definitely developed appears in the reduction of steel bars at Chicago to 2.25c. and of plates and shapes in the same market to 2.35c., or \$1 to \$2 a ton less than recent prices.

From Cleveland comes the definite estimate of a 75 per cent operation of the metal-working industries; in other districts, while figures are not given, part time employment is reported in a good many plants that work up iron and steel.

Structural steel bookings at close to 20,000 tons compare with the weekly average since May 1 of 18,000 tons, while not for over two months has such a volume of new work come before fabricators. Upward of 55,000 tons is called for, one third of it for tanks for oil companies and nearly as much for public work, and 10,000 tons for railroad bridge work.

In the Chicago district the low prices made by fabricators of steel is a matter of comment. Profits have been sacrificed to keep shops running, and it

is pointed out that present fabricating prices may prove to have reached low point, even though plain material may decline further.

The one new thing in railroad equipment is the revival of a Missouri Pacific inquiry for 2000 cars. The falling off in locomotive business is shown in shipments by the principal builders in the past five months of 822 engines (9 per cent foreign orders), against 1173 for the same period of 1923 (less than 6 per cent for foreign use). Unfilled orders on May 31 called for 643 (8½ per cent foreign) while at the same time last year 2150 (5 per cent foreign) were on the books.

The wrought-pipe trade has been better off than other lines, but the largest producer has run at a high rate while more than a third of the independent mills have been idle and others have accumulated stock.

The size of the cast-iron pipe order placed by a New Jersey public service gas company with a French foundry has been exaggerated, but early delivery was a factor, and the price was not far from \$10 a ton under the domestic market.

Following the heavier buying of pig iron last week, especially by a radiator company, activity has continued in some centers, particularly at Chicago, where 100,000 tons is pending. Prices have sagged fully \$1 at Cleveland on foundry and malleable grades, sales are being made at a reduction of \$1 in the South, and some low prices have come out in Buffalo and eastern Pennsylvania. Pending inquiry is of good volume, and the prevailing sentiment is more cheerful.

Prices on bolts and nuts have been reduced at Cleveland and to a greater extent at Pittsburgh, and the market is very irregular.

THE IRON AGE finished steel composite price has fallen to 2.610c. per lb., from 2.624c. last week. One year ago it was 2.789c.

Reductions in foundry iron have carried THE IRON AGE pig iron composite price to \$20.54, from \$20.86 last week. It is now at the lowest in more than two years, having been \$20.40 in April, 1922. One year ago it was \$28.46 a ton.

## Pittsburgh

### Prices on Most Products Fairly Maintained, But Pig Iron Is Irregular

PITTSBURGH, June 10.—The month to date has brought no definite increase in steel business as compared with May, and prices and production seem to be nearly stationary. For the first time in several weeks, there has been no change in the number of active blast furnaces in this and nearby districts in the past week, and the general average of steel works and rolling mills is about the same as it was a week ago.

Prices on most products are rather well maintained at recent levels, this being due to the fact that at the current low rate of plant activity, costs are much



A Comparison of Prices

Advances Over the Previous Week in Heavy Type, Declines in Italics  
At date, one week, one month, and one year previous

For Early Delivery

Pig Iron, Per Gross Ton:	June 10, 1924	June 3, 1924	May 13, 1924	June 12, 1923
No. 2X, Philadelphia	\$21.76	\$22.13	\$22.76	\$30.76
No. 2, Valley Furnace	20.00	20.00	21.00	29.00
No. 2, Southern, Cin'ti	\$4.05	25.05	26.05	29.55
No. 2, Birmingham, Ala.	20.00	21.00	22.00	25.50
No. 2 foundry, Chicago	22.00	22.00	23.00	32.00
Basic, del'd, eastern Pa.	21.00	21.00	21.00	23.14
Basic, Valley furnace	20.00	20.00	21.00	27.50
Valley Bessemer del. P'gh.	23.26	23.26	23.76	30.77
Malleable, Chicago	22.00	22.00	23.00	32.00
Malleable, Valley	20.00	20.00	21.50	29.00
Gray forge, Pittsburgh	21.26	21.26	22.26	30.27
L. S. charcoal, Chicago	29.15	29.15	29.15	36.65
Ferromanganese, furnace	107.50	107.50	107.50	130.00

Rails, Billets, Etc., Per Gross Ton:	June 10, 1924	June 3, 1924	May 13, 1924	June 12, 1923
O.-h. rails, heavy, at mill	\$43.00	\$43.00	\$43.00	\$43.00
Bess. billets, Pittsburgh	38.00	38.00	38.00	42.50
O.-h. billets, Pittsburgh	38.00	38.00	38.00	42.50
O.-h. sheet bars, P'gh.	40.00	40.00	40.00	45.00
Forging billets, base, P'gh.	43.00	43.00	43.00	52.50
O.-h. billets, Phila.	43.17	43.17	43.17	50.17
Wire rods, Pittsburgh	48.00	48.00	48.00	51.00
Skelp, gr. steel, P'gh, lb.	2.20	2.20	2.25	2.45
Light rails at mill	1.90	1.90	2.00	2.25

Finished Iron and Steel, Per Lb. to Large Buyers:	Cents	Cents	Cents	Cents
Iron bars, Philadelphia	2.42	2.42	2.47	2.72
Iron bars, Chicago	2.25	2.25	2.30	2.60
Steel bars, Pittsburgh	2.20	2.20	2.25	2.40
Steel bars, Chicago	2.25	2.25	2.35	2.60
Steel bars, New York	2.54	2.54	2.59	2.74
Tank plates, Pittsburgh	2.20	2.20	2.20	2.50
Tank plates, Chicago	2.35	2.40	2.45	2.80
Tank plates, New York	2.34	2.34	2.49	2.84
Beams, Pittsburgh	2.20	2.20	2.25	2.50
Beams, Chicago	2.35	2.45	2.45	2.70
Beams, New York	2.44	2.44	2.59	2.84
Steel hoops, Pittsburgh	2.75	2.75	2.75	3.30

\*The average switching charge for delivery to foundries in the Chicago district is 61c. per ton.  
†Silicon, 1.75 to 2.25. ‡Silicon, 2.25 to 2.75.

On export business there are frequent variations from the above prices. Also, in domestic business, there is at times a range of prices on various products, as shown in our market reports on other pages.

Sheets, Nails and Wire, Per Lb. to Large Buyers:	June 10, 1924	June 3, 1924	May 13, 1924	June 12, 1923
Sheets, black, No. 28, P'gh.	3.50	3.60	3.60	3.85
Sheets, galv., No. 28, P'gh.	4.75	4.80	4.80	5.00
Sheets, blue an'l'd, 9 & 10	2.75	2.80	2.80	3.00
Wire nails, Pittsburgh	2.90	2.90	2.90	3.00
Plain wire, Pittsburgh	2.65	2.65	2.65	2.75
Barbed wire, galv., P'gh.	3.70	3.70	3.70	3.80
Tin plate, 100-lb. box, P'gh.	\$5.50	\$5.50	\$5.50	\$5.50

Old Material, Per Gross Ton:	June 10, 1924	June 3, 1924	May 13, 1924	June 12, 1923
Carwheels, Chicago	\$15.50	\$16.00	\$16.00	\$22.00
Carwheels, Philadelphia	17.00	17.00	17.00	23.00
Heavy steel scrap, P'gh.	16.00	15.50	15.50	21.50
Heavy steel scrap, Phila.	15.00	15.00	14.50	18.00
Heavy steel scrap, Ch'go.	13.50	13.75	13.75	18.00
No. 1 cast, Pittsburgh	17.00	17.50	18.00	24.50
No. 1 cast, Philadelphia	17.50	17.50	17.00	22.00
No. 1 cast, Ch'go (net ton)	17.00	17.00	17.50	22.00
No. 1 RR. wrot. Phila.	16.50	16.50	16.50	23.00
No. 1 RR. wrot. Ch'go (net)	11.50	11.75	12.00	15.50

Coke, Connellsville, Per Net Ton at Oven:	June 10, 1924	June 3, 1924	May 13, 1924	June 12, 1923
Furnace coke, prompt	\$3.25	\$3.25	\$3.25	\$4.75
Foundry coke, prompt	4.50	4.50	4.75	5.50

Metals, Per Lb. to Large Buyers:	Cents	Cents	Cents	Cents
Lake copper, New York	12.87½	12.87½	13.37½	15.25
Electrolytic copper, refinery	12.50	12.50	13.00	14.75
Zinc, St. Louis	5.82½	5.80	5.87½	6.15
Zinc, New York	6.17½	6.15	6.22½	6.50
Lead, St. Louis	6.95	6.95	7.10	7.00
Lead, New York	7.12½	7.00	7.25	7.25
Tin (Straits), New York	42.00	40.75	46.00	42.00
Antimony (Asiatic), N. Y.	8.35	8.50	8.50	6.75

Composite Price, June 10, 1924, Finished Steel, 2.610c. Per Lb.

Based on prices of steel bars, beams, tank plates, plain wire, open-hearth rails, black pipe and black sheets	June 3, 1924, 2.624c. May 13, 1924, 2.639c. June 12, 1923, 2.789c. 10-year pre-war average, 1.689c.
These products constitute 88 per cent of the United States output of finished steel	

Composite Price, June 10, 1924, Pig Iron, \$20.54 Per Gross Ton

Based on average of basic and foundry irons, the basic being Valley quotation, the foundry an average of Chicago, Philadelphia and Birmingham	June 3, 1924, \$20.86 May 13, 1924, 21.79 June 12, 1923, 28.46 10-year pre-war average, 15.72
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higher than they would be with fuller engagement of capacity and there is also a more general realization that price concessions will not create a demand where none exists. Increased stability in the heavy tonnage products finds its explanation partly in the fact that a large Eastern producer recently has stiffened to a minimum of 2.20c. base, Pittsburgh, and other Eastern manufacturers holding to lower levels do not represent enough capacity to greatly concern mills in this and nearby districts.

Open meeting of competition by the American Sheet & Tin Plate Co. to the extent of \$4 a ton from its former quotations, produces a condition where companies representing more than 80 per cent of the country's sheet capacity are now on a base of 3.65c for black, 4.80c. for galvanized and 2.80c for blue annealed. Some mills still are open to business at below these prices. It remains to be seen whether they will move up or the others move down.

Bolt, nut and rivet prices still are weak and there

are so many more sellers than buyers of boiler tubes that prices are largely of buyers' making.

The week has been productive of more pig iron business than has been done before in one week since some of the sanitary ware and radiator manufacturers early in the year covered against their second quarter requirements. Much of the tonnage placed, however, has gone to a western Pennsylvania merchant furnace interest having a lower freight rate into Pittsburgh than the Valley furnaces and at prices about 50c. a ton under those of Valley furnaces, thus giving buyers an advantage of 87c. a ton over the delivered cost of Valley iron.

The scrap market shows a degree of strength, but this is due to purchases by dealers rather than consumers and unless there is support in the shape of consumptive demand before long, it would occasion no surprise if the market should weaken. At the present rate of steel mill operations, most companies are producing practically all the scrap they need. It will

take a brisk demand for finished steel and a decided quickening in steel works operation to bring prices for scrap to levels that will show dealers a profit over what they have lately paid for railroad scrap. As much as \$17.35 is paid for heavy melting steel in the June list of the Pennsylvania Railroad, as against \$16, the highest price that is offered by any of the Pittsburgh district mills.

The coke market does not give much support to pig iron producers who are trying to maintain prices. Furnace grade still is readily obtainable at \$3.25 per net ton at ovens and some lots recently have sold for a little less on forced sales.

**Pig Iron.**—We estimate the past week's business at between 15,000 and 20,000 tons, but the bulk of the tonnage having been placed with a furnace interest naming relatively low prices, it cannot be said that the gain in business truly reflects enthusiasm on the part of melters. The total has been swelled by one sale of 10,000 tons of basic iron for delivery over the last half of the year at \$19.50 from a western Pennsylvania furnace, which means a delivered price well below what the same grade of iron costs from Valley furnace. A sanitary ware manufacturer bought 1000 tons of No. 2 foundry iron at \$20.89 delivered, Pittsburgh, equivalent to \$19.11, Valley furnace, and we know of another sale of about 500 tons at the same delivered price to a Pittsburgh melter. Westinghouse Electric & Mfg. Co. has doubled its recent inquiry for its Cleveland plant to 6100 tons and has bought about half of this tonnage at \$20.50, Cleveland, for the base grade, delivery to be made over the last half instead of the third quarter, as the original inquiry stipulated. The same company recently put out an inquiry for 2700 tons of foundry grades for third quarter shipment for its Trafford, Pa., plant, but has since doubled the inquiry and extended the delivery over the last half of the year. Small sales of Bessemer iron have been made in western Pennsylvania at \$23 delivered, but Valley furnaces still are holding to \$21.50 and have made sales at that figure. No Valley basic iron lately has been moved, but all makers in that district are holding to \$20 furnace. Valley foundry iron is held at \$20 furnace for No. 2 and sales aggregating about 2000 tons are reported at that price.

We quote Valley furnace, the freight rate for delivery to the Cleveland or Pittsburgh district being \$1.76 per gross ton:

Basic .....	\$20.00
Bessemer .....	21.50
Gray forge .....	\$19.50 to 20.00
No. 2 foundry .....	20.00 to 21.00
No. 3 foundry .....	19.50 to 20.00
Malleable .....	20.00 to 20.50
Low phosphorus, copper free....	28.00 to 29.00

**Ferroalloys.**—The situation locally is without new developments of interest. Demand is extremely light in all directions, due to the low rate of steel works operations and interest in future requirements is lacking in absence of definite ideas as to whether ingot production will increase or decrease further. Prices are unchanged, but they are nominal and untested. They are given on page 1757.

**Semi-Finished Steel.**—It is no longer necessary to carry a range of prices on wire rods, as all makers are quoting \$48, base, and making no serious pretense of seeking more. Business is no better at that price than it was at the old base of \$51 and there is a belief among buyers that they would not have to pay \$48 if they had a good-sized tonnage to place. Contracts written at higher prices have been generally revised down to \$48. There is a tendency on the part of makers of billets, slabs and sheet bars to make a stand at present quotations, because it has been found that consumers are not interested at any price and costs have advanced materially with the lower rate of steel works operations. In the absence of inquiries of any importance, it would be exaggeration to call the market firm; really, it is untested. Prices of forging billets and of skelp likewise lack the test of a demand of any considerable size. Steel works operations in this and nearby districts still are well below 50 per cent of capacity. Prices are given on page 1757.

**Wire Products.**—While some makers note some in-

crease in specifications, the more common report is that both orders and specifications are of small compass. Some comfort is derived from a belief that jobbers and manufacturing consumers are going along with very limited stocks, but there being no indications that prices are going higher in the near future, they evidently feel safe in letting their inventories run low. There is also the factor of uncertainty about prices, although it is a fact that there is more general observance of \$2.90, base, per keg for nails and \$2.65, base, per 100 lb. for plain wire than was the case recently, when some mills took nail orders from their larger customers as low as \$2.85, base. Coated nails have definitely settled to \$2.35, base, per count keg, and the prospect of a big hay crop on account of almost constant rain this spring is not helping the market for bale ties. As against the regular quotation of 75 and 5 per cent off list, there are quotation as low as 75, 5, 5 and 2½ per cent off list. Plant operations in this district still average about 40 per cent of capacity. Prices are given on page 1756.

**Steel Rails.**—Some effort is being made by makers of billet light rails to restore a minimum of 2c., base, and on the general run of orders, which are for small lots, that price is obtainable, but on the few sizable lots recently placed 1.90c. was the price, and it is not disputed that this price might be done again on the right sort of an order.

We quote light rails, rolled from billets, 1.90c. to 2c. base (25-lb. to 45-lb.); rolled from rail steel, 1.75c. to 1.85c. base (12-lb. to 45-lb.), f.o.b. mill; standard rails, \$43 per gross ton mill, for Bessemer and open-hearth sections.

**Tubular Goods.**—Pipe business still makes a favorable showing by comparison with other finished steel products, but not by contrast with pipe business of the past few years at this season. There is a demand to engage about 70 per cent of the steel pipe capacity, but that rate finds its chief explanation in the fact that the leading interest is running about 80 per cent, as more than one-third of 39 independent pipe furnaces in this and nearby districts are idle. Few of the independents have backlogs of any considerable size, while some of them have fair-sized mill stocks. Demand from jobbers for standard pipe runs chiefly to small lots of sizes on orders they cannot fill from their own stocks; for some time their efforts have been directed toward reducing their stocks in the belief that the decline in other products would extend to pipe. There have been quotations by jobbers as low as 63, 5 and 2½ per cent off list for the base sizes, as against the mill discount to jobbers of 63 and 5 per cent off list. Downward trend of oil prices tends to restrict demand for oil country pipe and only the leading interest has much line pipe business booked. Card discounts on boiler tubes are useful only as a basis of negotiations, because concessions are common and in some cases very steep, with jobbers naming the mill base on small lots. Discounts are given on page 1756.

**Sheets.**—The interesting development of the week is the authorization by the American Sheet & Tin Plate Co. to its district sales managers to meet at their discretion prices of independent manufacturers to the extent of \$4 a ton. Thus, this company will take business at 3.65c., base, for black, 4.80c., base, for galvanized, and 2.80c., base, for blue annealed, prices which have been observed by the larger independents for several weeks. There has been no formal abandonment of the former quotations and the concessions of as much as \$4 a ton from these levels are supposed to be available only to the company's larger customers and then on business subject to delivery at the company's convenience. This is a rather novel policy. Mill operations reflect no particular improvement in business and the report by sales departments does not indicate any tendency by buyers to increase their commitments. The industry as a whole is running about 45 per cent of capacity. There are some mills which have not stiffened prices to the levels that now become the prevailing ones by the action of the leading interest. Prices are given on page 1756.

**Tin Plate.**—This market still is very quiet, although some demands for stock items for quick delivery would indicate requirements by can makers that could not



wait on fresh production. Shipping instructions against material stocked on order are still restricted and there is not much interest in future supplies on the part of the makers of packers' cans, because of the doubts created by weather conditions as to the size of this year's crops. The leading interest is down about 5 per cent from the recent rate of operations and the industry as a whole is probably below 70 per cent of capacity. There are no intimations of lower prices than is indicated by the regular quotation of \$5.50 per base box, Pittsburgh, for standard cokes on domestic business.

**Cold-Finished Steel Bars and Shafting.**—As a selling price 3c., base, has disappeared, and all makers now are at a base of 2.90c. for carloads, and some are even naming that figure on less than carloads. As a matter of fact, the quantity differential is practically shelved, as it usually is in dull periods, and only in cases where quickness of delivery counts is an extra obtainable. Inquiry is better with some producers, but actual orders are light with all of them. The situation is better than that of three years ago to the extent that consumers have no large stocks to liquidate as they did then. Decline in prices has not yet extended to ground shafting, which still is priced at 3.40c., base, f.o.b. mill, in lots of a carload or more.

**Bolts, Nuts and Rivets.**—Price instability continues and some steep concessions are being made on bolts and nuts out of manufacturers' stocks. A Middle Western maker lately has named 70, 10 and 5 per cent off list for small rolled thread machine bolts out of stock, 70 and 5 per cent off list for small cut thread machine bolts, 65, 10 and 10 per cent off list on rolled thread small carriage bolts, 65 and 10 per cent off list on large cut thread carriage bolts, and 70 and 10 per cent off list on lag bolts. On hot pressed nuts 5c. off list is easily done and on c.p.c. and t. nuts small orders are taking the maximum quoted discount. Generally, \$2.65, base, is as high as sales of sizable lots of large rivets are being made and large buyers are being named \$2.60, with half, instead of full, extras. Discounts and prices are given on page 1756.

**Track Supplies.**—Makers are holding to recent prices, but are getting almost no business and the market is best described as easy at quotations, which are given on page 1756.

**Iron and Steel Bars.**—There has been no increase in demand or specifications for steel bars, but the market is firmer to the extent that makers in this district now are adhering strictly to a base of 2.20c. Recently a firm bid of less on a fair sized tonnage would not have been turned down. Costs are rising with reduced mill operations and this tends to restrict price cutting, especially as concessions have failed to stimulate business. Iron bars are dull, but recent quotations are holding fairly well. Prices are given on page 1756.

**Structural Steel.**—Fabricated steel business is looking up in this district, and while most of the awards run to small tonnages, the aggregate is larger than it was recently. Plain material is more firmly held in this district at 2.20c., base, for large structural beams than was true recently, because a large Eastern producer recently stiffened to that base, and there is less tendency among local mills to be disturbed by the low prices being named by other Eastern mills. On passing business it has been found that 2.20c. is as easily obtainable as lower figures. Prices are given on page 1756.

**Plates.**—Tank inquiries for the Southwest involving about 1300 tons of plates have enlivened the market, although latest indications are that the tank orders will go to a Chicago district builder and the steel will be furnished by Chicago mills. Actual business still is light. Pittsburgh and Youngstown mills have only about one-third of the capacity engaged. There is a belief that as much business will come out at 2.20c., base, Pittsburgh, as at a lower figure, and consequently there is less tendency to shade that price than was true recently. Eastern competition on prices is no longer seriously regarded by mills here and in nearby districts. There is no profit in plates at today's prices

and today's costs based on a very low operating rate. Prices are given on page 1756.

**Hot-Rolled Flats.**—There is no change in prices, although business is only fair and the mills are not averaging more than 50 per cent of capacity, operations of consumers are going along with very light stocks, and the fact that there has been some increase in specifications in strips rather indicates that some consumers are finding it necessary to buy to meet demands upon them. Prices are given on page 1756.

**Cold-Rolled Strips.**—Demand for this product still is on about a 50 per cent basis, and thus is about keeping pace with the automotive industry, which is averaging about 50 per cent of productive capacity. It is this industry that affords the principal outlet for cold-rolled strips. There are no important deviations from the regular price of 4.50c., base, Pittsburgh.

**Coke and Coal.**—In spite of a very steep curtailment of production by Connellsville coke producers, offerings still exceed the demand and prices remain easy. Spot tonnages of furnace coke are still readily available at \$3.25 per net ton at ovens for standard grade and there have been a few sales of tonnages which had to be moved as low as \$3.15. A Valley furnace interest, seeking 8000 tons for shipment over the next 30 days, was able to place this tonnage at \$3.25. Foundry coke also is weaker to the extent that few sales of spot tonnages are being made at higher than \$4.50 per net ton at ovens, this because some producers who ordinarily run heavily on furnace grade now are seeking business in 72-hr. fuel. The coal market still has a weak undertone despite the fact that there is a slightly better demand. This runs chiefly to lump coal and has resulted in an increased supply of slack which has to be marketed at well below recent figures. We quote steam slack at \$1.10 and \$1.20 per net ton at mines and gas slack at \$1.20 to \$1.30. Mine run steam coal still is quoted at \$1.50 to \$1.75; mine run coking \$1.75 to \$2, and mine run gas coal at \$2 to \$2.25.

**Old Material.**—A slightly stronger tendency is observed, due not so much to any increase in consumer demand as to the bullishness of the dealers on the immediate prospect, which has led them to pay very stiff prices for railroad material. Opinion varies as to how many high-priced old orders remain open, but it is believed that there must have been some such orders to prompt dealers to pay from \$16.75 to \$17.35 for the heavy melting steel in the June list of the Pennsylvania Railroad, \$19.25 for the specialties in that list, \$15.75 for the rails and \$14.50 for the uncut bolsters and side frames, which must be worked through dealers' yards before they can be marketed. One mill in the district is bidding \$16 for heavy steel scrap and \$15 for compressed sheets, but other steel companies remain out of the market and the one which is buying is doing so to reduce averages rather than because of a need of supplies. Light scrap is scarce and firm. Detroit is producing little of this material just now and Toledo and Cleveland are paying much higher prices than rule here.

We quote for delivery to consumers' mills in the Pittsburgh and other districts taking the Pittsburgh freight rate as follows:

	Per Gross Ton
Heavy melting steel.....	\$16.00
No. 1 cast, cupola size.....	\$17.00 to 17.50
Rails for rolling, Newark and Cambridge, Ohio; Cumberland, Md.; Huntington, W. Va., and Franklin, Pa. ....	16.50 to 17.00
Compressed sheet steel.....	14.50 to 15.00
Bundled sheets, sides and ends..	13.00 to 13.50
Railroad knuckles and couplers..	19.00 to 19.50
Railroad coil and leaf springs..	19.00 to 19.50
Low phosphorus blooms and billet ends .....	20.00 to 21.00
Low phosphorus plate and other material .....	19.50 to 20.00
Railroad malleable .....	15.50 to 16.00
Steel car axles .....	19.00 to 19.50
Cast iron wheels .....	16.00 to 16.50
Rolled steel wheels .....	19.00 to 19.50
Machine shop turnings .....	13.00 to 13.50
Sheet bar crops .....	16.00 to 16.50
Heavy steel axle turnings.....	14.50 to 15.00
Short shoveling turnings.....	13.00 to 13.50
Heavy breakable cast .....	15.50 to 16.00
Stove plate .....	13.50 to 14.00
Cast iron borings .....	14.00 to 14.50
No. 1 railroad wrought .....	14.00 to 14.50
No. 2 railroad wrought .....	16.00

## Chicago

### Increased Activity in Pig Iron—General Sentiment Improved

CHICAGO, June 10.—Market sentiment shows a change for the better, although actual buying still lags. Pig iron commands particular attention because of the appearance of a generous volume of inquiries and the placing of a number of fair sized orders. The change in the finished steel situation is confined principally to increased activity in the fabricating field, demand for oil storage tanks being especially noteworthy. Mill bookings, however, show little improvement, but inquiries from all sources, although usually small, are more numerous.

There is no question that users have decided that it is a good time to feel out prices, even if they have not fully decided to buy. Another decline in plates, shapes and bars this week may encourage further delay, but producers are confident that the time is close at hand when consumers will conclude that little is to be gained through further waiting. Meanwhile both sellers and buyers are pursuing an opportunist policy, pending price stabilization. It is generally agreed that business will improve when prices strike bottom, but there is little expectation of a sudden avalanche of orders. Although in most cases, consumers' stocks are low, industrial activity is also on a lower plane than early in the year.

Mill operations have suffered a further reduction and now range from 50 to 60 per cent in this district. Of the 30 steel works blast furnaces of the two leading mills, only 15 are now active, there having been a net loss of one during the week. A furnace at Gary resumed after having been temporarily banked for repairs, while at South Chicago one stack was banked and another blown out. The four furnaces of the smaller independent steel interests are still in blast. At Duluth, however, both of the stacks of the steel plant there are out of blast. Wire mill operations are particularly slow, probably averaging less than 50 per cent; in fact, one of the Western independent plants has shut down. A local bar iron mill, on the other hand, has resumed operations after having been idle a week.

**Pig Iron.**—A marked revival in demand, accompanied by the placing of a number of good sized orders, has developed during the week. Most of the important melters in this district and some of the smaller ones are figuring on their needs, and it is estimated that actual and tentative inquiries aggregate close to 100,000 tons. In many cases buyers have done nothing beyond feeling out the market, but practically all of them are keeping a close watch on developments. Among authentic sales are 1000 tons of malleable for Indiana delivery, 500 tons of malleable for a Wisconsin plant, 500 tons of foundry for a western Illinois melter, and 500 tons of malleable for a central Illinois user. One of the largest of current inquiries is 5000 tons for a large interest in this immediate vicinity. A down State plant is in the market for 1400 tons of foundry and 1000 tons of malleable. There are numerous other inquiries for 500 tons or less, calling for both early and third quarter delivery. Local pig iron is still quotable at \$22, base furnace, but it is possible that a lower price might be named on an attractive tonnage. The St. Louis district producer is quoting \$21.50, furnace, but a sale of 10,000 tons of basic to an open-hearth plant in that vicinity is reported to have brought out a lower figure. No sales of Southern iron are reported. There has been an increasing number of carlot sales of charcoal at \$26, furnace, and an Illinois inquiry calls for 100 tons. We note two carlot sales of silvery at the market. A Milwaukee plant is inquiring for a carload of low phosphorus. Merchant blast furnace operations in this district remain unchanged, but

at St. Louis the Granite City stack has blown in after having been relined.

Quotations on Northern foundry, high phosphorus, malleable and basic irons are f.o.b. local furnaces and do not include an average switching charge of 61c. per ton. Other prices are for iron delivered at consumers' yards or, when so indicated, f.o.b. furnace other than local.

Lake Superior charcoal, averaging sil. 1.50, delivered at Chicago .....	\$29.15
Northern coke, No. 1 sil. 2.25 to 2.75 .....	22.50
Northern coke, foundry, No. 2, sil. 1.75 to 2.25 .....	22.00
Malleable, not over 2.25 sil. ....	22.00
Basic .....	22.00
High phosphorus .....	22.00
Southern No. 2 .....	27.01
Southern No. 2 (barge and rail) .....	24.63
Low phos., sil. 1 to 2 per cent, copper free .....	30.50
Silvery, sil. 8 per cent .....	35.29
Electric ferrosilicon, 14 to 16 per cent .....	45.42

**Ferroalloys.**—There have been a few carlot sales of ferromanganese at \$107.50, seaboard, and one current inquiry calls for 100 tons. A carload sale of spiegel-eisen brought \$35, New Orleans.

We quote 80 per cent ferromanganese, \$115.06; delivered; 50 per cent ferrosilicon, \$75, delivered; spiegel-eisen, 18 to 22 per cent, \$42.56 to \$43.56, delivered.

**Structural Material.**—Both fabricating awards and inquiries have shown a decided betterment, lettings for the week amounting to nearly 11,000 tons, including 2000 tons of oil storage tank work, and new projects amounting to 27,500 tons, including nearly 19,000 tons in tanks. Competition among fabricators has been keen and their quotations on recent jobs have been unusually low. In other words, profits have been sacrificed in order to keep shops running. In fact, present fabricating prices may actually prove lower than may be named later, even if plain material prices undergo a further decline. A few more weeks of liberal lettings would undoubtedly cause fabricators to take a firmer position. That mill bookings are still unsatisfactory is indicated by a further decline in plain material to 2.35c., Chicago.

The mill quotation on plain material is 2.35c., Chicago. Jobbers quote 3.30c. for plain material out of warehouse.

**Plates.**—Prices have definitely declined to a maximum of 2.35c., Chicago, and in view of slack demand the market is flexible even at that level. There has been little new car buying, but the Missouri Pacific has revived an inquiry for 1000 automobile and 1000 refrigerator cars and is expected to place orders shortly. A local independent has received specifications for 11,300 tons of plates, shapes and bars for Chesapeake & Ohio cars to be built at Newport News, and 25,000 tons for cars to be built for the same railroad by the General American Car Co. Mills are encouraged by the renewed interest in oil storage tanks. The Humble Oil Co. has awarded five tanks, requiring 1000 tons, to the Kansas City Structural Steel Co., while the Dixie Oil Co. has let five tanks, involving an equal tonnage, to the Mount Cooper Boiler & Iron Company. The Marland Oil Co. is inquiring for 20 to 40 tanks, calling for 6000 to 12,000 tons, and other tank inquiries involve nearly 7000 tons additional.

The mill quotation is 2.35c., Chicago. Jobbers quote 3.30c. for plates out of stock.

**Bars.**—Demand shows no improvement, and the maximum going price on soft steel bars is now 2.25c., Chicago, while rail steel bars have declined to 2.15c., Chicago mill.

Mill prices are: Mild steel bars, 2.25c., Chicago; common bar iron, 2.25c., Chicago; rail steel, 2.15c. to 2.20c., Chicago mill.

Jobbers quote 3.20c. for steel bars out of warehouse. The warehouse quotations on cold-rolled steel bars and shafting are 4c. for rounds and 4.50c. for flats, squares and hexagons.

Jobbers quote hard and medium deformed steel bars at 2.45c. to 2.50c., base; hoops, 4.45c.; bands, 3.95c.

**Cast Iron Pipe.**—Detroit has formally distributed 6800 tons between the United States Cast Iron Pipe & Foundry Co., the Lynchburg Foundry Co. and the American Cast Iron Pipe Co. The United States company has also booked 340 tons for Jacksonville, Ill. Cleveland has opened bids on 1240 tons of 6-, 8- and 24-in. Grand Rapids, Mich., has taken figures on 800 tons. There have been numerous orders for a carload or two from the smaller municipalities which, in the aggregate, buy



more pipe than the larger cities. Pipe shops are comfortably booked; in fact, a representative company sold more than it shipped last month.

We quote per net ton, f.o.b. Chicago, as follows:  
Water pipe, 4-in., \$58.70 to \$59.70; 6-in. and over, \$54.70 to \$55.70; Class A and gas pipe, \$5 extra.

**Reinforcing Bars.**—There has been a noticeable falling off in both lettings and new inquiries. A number of large pending projects, however, are about to be closed. Among them are the New Palmer House, Chicago, involving 2000 tons, a north side sewer for the Sanitary District of Chicago, 1650 tons, and the H. E. Bell Building, Chicago, 200 tons. The general contract for the R. R. Donnelly & Co. plant, Chicago, involving 400 tons, has been awarded to the Leonard Construction Co. Prices are still weak, although no lower than heretofore. Lettings include:

Shorewood High School, Milwaukee, 125 tons to Concrete Steel Co.

Our Lady of Mercy High School, Milwaukee, 200 tons to Concrete Steel Co.

Commercial National Bank Building, Peoria, Ill., 195 tons to Concrete Steel Co.

Pioneer State Bank Building, Chicago, 195 tons to Olney J. Dean & Co.

Bartlett warehouse, Rockford, Ill., 100 tons to American System of Reinforcing.

Becklenberg Theater building, Chicago, 100 tons to Concrete Steel Co.

Pending business includes:

Grand Trunk Railroad terminal, Battle Creek, Mich., 185 tons.

R. R. Donnelly & Co. plant, Chicago, 400 tons, general contract awarded to Leonard Construction Co.

**Sheets.**—Demand fails to improve and prices are again showing weakness. While most mills continue to hold to 3.65c., base Pittsburgh, on black and 4.80c. on galvanized, concessions of \$1 a ton under those figures have been made.

Mill quotations are 3.65c. to 3.85c. for No. 28 black, 2.80c. to 3c. for No. 10 blue annealed, and 4.80c. to 5c. for No. 28 galvanized, all being Pittsburgh prices, subject to a freight rate to Chicago of 34c. per 100 lb.

Jobbers quote f.o.b. Chicago: 4c. for blue annealed; 4.70c. for black and 5.60c. for galvanized.

**Wire Products.**—Specifications have been somewhat more liberal, possibly indicating that jobbers have exhausted stocks and have been forced to replenish. Purchases, however, have not been sufficiently large to cause any further price disturbance. Mill operations are still less than 50 per cent of capacity. For mill prices see finished iron and steel, f.o.b. Pittsburgh, page 1756.

We quote warehouse prices f.o.b. Chicago: No. 6 to No. 9 bright basic wire, \$3.40 to \$3.90 per 100 lb.; extra for black annealed wire, 15c. per 100 lb.; common wire nails, \$3.60 to \$3.80 per 100 lb.; cement coated nails, \$3 to \$3.25 per keg.

**Rails and Track Supplies.**—The Northern Pacific has placed 1500 tons of tie plates with a local mill. The Chesapeake & Ohio is inquiring for 100 tons of rails and 5000 kegs of spikes and bolts. The Missouri Pacific is in the market for spikes and bolts and the Pere Marquette for tie plates.

Standard Bessemer and open-hearth rails, \$43; light rails, rolled from billets, 2.10c., f.o.b. makers' mills.

Standard railroad spikes, 3.10c. mill; track bolts with square nuts, 4.10c. mill; steel tie plates, 2.60c., f.o.b. mill; angle bars, 2.75c., f.o.b. mill.

Jobbers quote standard spikes out of warehouse at 3.75c. base, and track bolts, 4.75c. base.

**Bolts and Nuts.**—An important bolt maker has decided to open books for third quarter at 60 and 10 and 10 off for large machine bolts. If contracts cannot be closed on that basis, business will be limited to immediate specifications, as it is regarded bad policy to commit the company over an extended period at extremely low figures. Current bookings are light and discounts remain weak.

Jobbers quote structural rivets, 3.75c.; boiler rivets, 3.95c.; machine bolts up to  $\frac{1}{2}$  x 4 in., 55 and 5 per cent off; larger sizes, 55 and 5 off; carriage bolts up to  $\frac{1}{2}$  x 6 in., 50 and 5 off; larger sizes, 50 and 5 off; hot pressed nuts, squares and hexagons, tapped, \$3.50 off; blank nuts, \$3.50 off; coach or lag screws, gimlet points, square heads, 60 and 5 per cent off.

**Old Material.**—Aside from a purchase of about 10,000 tons of heavy melting by a local independent mill at \$14 delivered, the market has been singularly

quiet and prices on many grades have given further ground. Here and there a few consumer orders for cast and low phosphorus grades have been placed, but in general the market is stagnant. Railroad offerings include Northern Pacific, 2800 tons; Pullman Co., 1100 tons; Soo Line, 500 tons.

We quote delivery in consumers' yards, Chicago and vicinity, all freight and transfer charges paid, as follows:

Per Gross Ton	
Iron rails	\$16.50 to \$17.00
Cast iron car wheels	15.50 to 16.00
Relaying rails, 56 and 60 lb.	26.00 to 27.00
Relaying rails, 65 lb. and heavier	27.00 to 32.00
Forged steel car wheels	16.50 to 17.00
Railroad tires, charging box size	17.00 to 17.50
Railroad leaf springs, cut apart	17.00 to 17.50
Rails for rolling	14.75 to 15.25
Steel rails, less than 3 ft.	16.00 to 16.50
Heavy melting steel	13.50 to 14.00
Frogs, switches and guards cut apart	13.50 to 14.00
Shoveling steel	13.25 to 13.75
Drop forge flashings	9.50 to 10.00
Hydraulic compressed sheets	10.00 to 10.50
Axle turnings	11.50 to 12.00
Steel angle bars	15.00 to 15.50
Steel knuckles and couplers	16.50 to 17.00
Coil springs	18.00 to 18.50
Low phos. punchings	15.00 to 15.50
Machine shop turnings	7.00 to 7.50
Cast borings	10.00 to 10.50
Short shoveling turnings	10.00 to 10.50
Railroad malleable	17.00 to 17.50
Agricultural malleable	16.50 to 17.00

Per Net Ton	
Iron angle and splice bars	15.50 to 16.00
Iron arch bars and transoms	16.50 to 17.00
Iron car axles	23.00 to 23.50
Steel car axles	16.00 to 16.50
No. 1 busheling	9.00 to 9.50
No. 2 busheling	7.00 to 7.50
Pipes and flues	8.00 to 8.50
No. 1 railroad wrought	11.50 to 12.00
No. 2 railroad wrought	12.00 to 12.50
No. 1 machinery cast	17.00 to 17.50
No. 1 railroad cast	16.00 to 16.50
No. 1 agricultural cast	16.00 to 16.50
Locomotive tires, smooth	14.75 to 15.25
Stove plate	14.00 to 14.50
Grate bars	13.00 to 13.50
Brake shoes	13.50 to 14.00

### New Extras on Spikes Add to Net Prices

Advances of from \$3 to \$13 a ton on railroad and boat spikes have been put into effect through the adoption by manufacturers generally of a new set of extras. The base sizes and prices remain unchanged, except so far as the latter are affected by current business conditions, but on all other sizes there are increased extras, the greatest advance, \$13 a ton, taking effect on some of the smallest sizes. The new extras follow:

Railroad Spikes	
$\frac{1}{8}$ and $\frac{1}{4}$ x 4 $\frac{1}{2}$ in. and longer	Base
$\frac{1}{2}$ x 3 and 3 $\frac{1}{2}$ in.	50c. per 100 lb. extra
$\frac{1}{2}$ x 4, 4 $\frac{1}{2}$ and 5 in.	25c. per 100 lb. extra
$\frac{3}{4}$ x 3 $\frac{1}{2}$ to 4 $\frac{1}{2}$ in.	65c. per 100 lb. extra
$\frac{3}{4}$ x 3 to 4 $\frac{1}{2}$ in.	90c. per 100 lb. extra
$\frac{3}{4}$ x 2 $\frac{1}{2}$ to 3 $\frac{1}{2}$ in.	\$1.70 per 100 lb. extra
$\frac{3}{4}$ x 2 $\frac{1}{2}$ in.	\$1.15 per 100 lb. extra
Boat Spikes	
$\frac{1}{4}$ sq. x 12 in. to 24 in. long	Base
$\frac{1}{4}$ sq. x 12 in. to 24 in. long	40c. per 100 lb. extra
$\frac{1}{4}$ sq. x 8 in. to 16 in. long	40c. per 100 lb. extra
$\frac{1}{4}$ sq. x 6 in. to 16 in. long	40c. per 100 lb. extra
$\frac{1}{4}$ sq. x 6 in. to 12 in. long	45c. per 100 lb. extra
$\frac{1}{4}$ sq. x 4 in. to 12 in. long	55c. per 100 lb. extra
$\frac{1}{4}$ sq. x 4 in. to 8 in. long	70c. per 100 lb. extra
$\frac{1}{4}$ sq. x 4 in. to 8 in. long	\$1.00 per 100 lb. extra
$\frac{1}{4}$ and $\frac{1}{8}$ in., shorter than 4 in.	25c. per 100 lb. extra

### Sales Convention of Disston & Sons

Branch managers and principal distributors for Henry Disston & Sons, Inc., attended an annual sales convention at the plant in Philadelphia, May 22 to 24. Among those present were L. L. Mather, manager for Cincinnati and Chicago; A. A. Gardner, manager of the Pacific Coast branches; E. F. Cooper, Atlanta, Ga.; J. A. Riechman and Richard Alcott of Riechman-Crosby Co., Memphis; R. E. Kelleher of C. T. Patterson & Co., Ltd., New Orleans, and J. A. McKay of R. B. McKim Co. Boston. The Empire Machinery & Supply Corporation, Norfolk, Va., was represented by Walter Graham. A banquet and theater party followed the meetings at the factory.

## New York

### Moderate Activity in Pig Iron—Decided Weakness in Coke

NEW YORK, June 10.—Sales of pig iron in the past ten days have amounted to between 35,000 and 40,000 tons in this territory, including 15,000 tons bought by the American Radiator Co. for its Bayonne plant; 1700 tons for the Richardson-Boydton Co.; three lots of about 750 tons each for the Chapman Valve & Mfg. Co., Indian Orchard, Mass.; about 1000 tons for the Gurney Heater Co., Framingham, Mass.; and fair tonnages for the Richmond Radiator Co., Burnham Boiler Co., and the Saco-Lowell Shops. The price paid by the American Radiator Co. is supposed to be low, but this is the usual presumption for this company, and it is not known definitely what the price was. For other buyers the usual quotations range from \$19 to \$19.50, Buffalo, and \$20 to \$21, eastern Pennsylvania. An encouraging feature for sellers is that the inquirers have almost invariably ordered as much or more than they inquired for. The general feeling is one of hopefulness. Pending written inquiry is small, but a number of important melters are quietly figuring on purchases of considerable volume.

We quote delivered in the New York district as follows, having added to furnace price \$2.27 freight from eastern Pennsylvania, \$4.91 from Buffalo and \$5.44 from Virginia:

East. Pa. No. 1X fdy., sil. 2.75	
to 3.25	\$23.77 to \$24.27
East. Pa. No. 2X fdy., sil. 2.25	
to 2.75	23.27 to 23.77
East. Pa. No. 2, sil. 1.75 to 2.25	22.77 to 23.27
Buffalo, sil. 1.75 to 2.25	23.91 to 24.41
No. 2X Virginia, sil. 2.25 to 2.75	31.44
No. 2 Virginia, sil. 1.75 to 2.25	30.44

**Ferroalloys.**—There are still a few consumers of ferromanganese who need a carload lot now and then and a few sales of such quantities are noted. The same is true of steel makers who use spiegeleisen and a few carload lots of this material have been sold in the past week. Despite the low volume of operations in the steel industry, there are still a few plants needing small amounts of these alloys. There have been no changes in quotations for either the British or domestic alloys, although it is stated that a domestic producer of ferromanganese is willing to take orders at a concession under the British price.

**Coke.**—Weakness in the coke market is pronounced. While \$4.25 to \$4.75 represents the market on prompt shipment car lots of standard foundry coke, as low as \$3.85 is said to have been done on occasional distress tonnages. Standard furnace is quotable at from \$3.50 to \$4 per ton, with distress tonnages sold at as low as \$3.10 per ton. By-product is unchanged at \$10.41, Newark and Jersey City, N. J.

**Cast Iron Pipe.**—Demand is light and prices continue unchanged, although the volume of present purchasing is not heavy. Since recent sales of cast iron pipe by a French maker to American consumers, importers are considering the possibility of profitable importation of British or Continental water and gas pipe. We quote per net ton, f.o.b. New York, in carload lots, as follows: 6-in. and larger, \$61.60 to \$63.60; 4-in. and 5-in., \$66.60 to \$68.60; 3-in., \$76.60 to \$78.60, with \$5 additional for Class A and gas pipe. Effective June 7, discounts on soil pipe were increased 5 points but as yet the lower price has not stimulated much buying. We quote discounts of both Southern and Northern makers, f.o.b. New York, as follows: 6-in., 34½ to 35½ per cent off list; heavy, 44½ to 45½ per cent off list.

**Warehouse Business.**—A few jobbers report a slight increase in the tonnage of individual orders since June 1, but in most instances the volume of business is unchanged from last month. Sellers of structural steel have felt the effect of the strike of structural workers in reduced sales. On some products there is considerable activity among dealers, some jobbers with low stocks on certain sizes evidently preferring to handle current business by purchasing the missing sizes from other warehouses. Sheets are still firm, particularly galvanized. Shading of prices is but little in evidence

on any products, although there is some weakness manifest when large orders are offered. We quote prices on page 1776.

**Finished Iron and Steel.**—Paradoxical as it may seem, the selling branch of the steel trade derives its chief encouragement from the sharp curtailment in production, believing that this will bring about an improved market condition in the shortest possible time. There has been no betterment in the past week except perhaps a slightly greater degree of confidence that conditions will not get any worse. Prices are about where they stood a week ago, with special concessions whenever any particularly attractive tonnage is in sight. The structural steel workers' strike in New York is not yet settled, but about 50 per cent of the normal number of erectors are at work. Private building work has dropped off to a marked extent, but a fair volume of public and semi-public work is being let. Railroad buying is confined chiefly to bridge material. The largest plate inquiry is from the Newport News Shipbuilding & Dry Dock Co., which will buy about 2500 tons for a steamship to be built for the New York & Porto Rico Steamship Co. No decision has been reached on the ferryboats to be built for the city of New York, but it is expected that these will be awarded to the Staten Island Shipbuilding Co., although it was not the lowest bidder. The six boats will require 1500 tons of steel. Plates are quoted at 2c., shapes at 2.10c., bars at 2.20c., black sheets at 3.60c., blue annealed at 2.80c. and galvanized at 4.80c., all f.o.b. Pittsburgh. Other products are unchanged.

We quote for mill shipments, New York delivery, as follows: Soft steel bars, 2.54c.; plates, 2.34c. to 2.44c.; structural shapes, 2.44c. to 2.59c.; bar iron, 2.44c.

**Old Material.**—Activity is confined to shipments on old contracts, particularly to Bethlehem, the recent embargo having been entirely lifted. Heavy melting steel is unchanged at \$14 to \$14.50 per ton delivered eastern Pennsylvania for railroad grade and about \$13.50 per ton for yard steel. Borings and turnings are going forward on old orders at \$11 to \$11.50 and a consumer in Harrisburg has been receiving shipments of cast borings at \$13 per ton delivered, but some brokers have reduced their offers for this shipment to \$12.50 per ton. As high as \$8.75 per ton, New York, is said to have been offered for borings and turnings for eastern Pennsylvania shipment. Machine shop turnings are quotable at \$11.50 per ton delivered eastern Pennsylvania. Specification pipe is still going forward to Lebanon and Milton, Pa., at \$14 to \$14.25 per ton. Unless higher contract prices are obtainable from consumers on new orders, some brokers are inclined to predict difficulty in obtaining material.

Buying prices per gross ton New York follow:

Heavy melting steel, yard	\$10.25 to \$10.75
Steel rails, short lengths, or equivalent	11.00 to 11.50
Rolls for rolling	14.00 to 14.50
Relaying rails, nominal	24.00 to 25.00
Steel car axles	16.00 to 17.00
Iron car axles	23.00 to 24.00
No. 1 railroad wrought	14.00 to 14.50
Forge fire	8.25 to 8.75
No. 1 yard wrought, long	13.00 to 13.50
Cast borings (clean)	8.75 to 9.25
Machine-shop turnings	7.75 to 8.25
Mixed borings and turnings	7.75 to 8.25
Iron and steel pipe (1 in. diam., not under 2 ft. long)	10.00 to 10.50
Stove plate	10.75 to 11.75
Locomotive grate bars	11.50 to 12.00
Malleable cast (railroad)	No market
Cast iron car wheels	13.50 to 14.00

Prices which dealers in New York and Brooklyn are quoting to local foundries per gross ton follow:

No. 1 machinery cast	\$15.00 to \$15.50
No. 1 heavy cast (columns, building materials, etc.), cupola size	13.00 to 13.50
No. 1 heavy cast, not cupola size	10.00 to 10.50
No. 2 cast (radiators, cast boilers, etc.)	12.00 to 12.50

The Alexander L. Holley medal to be given for great achievement in engineering and industry has been established by George I. Rockwood, president Rockwood Sprinkler Co., Worcester, Mass., to be administered by the American Society of Mechanical Engineers, of which he is one of the vice-presidents. Mr. Holley was a founder of the society and one of the outstanding American engineers of the last century, conspicuously identified, among other things, with the development of steel making in this country.



## Buffalo

### Distribution of American Radiator Purchase —Low Price for Local Plant

BUFFALO, June 10.—The past week's buying in pig iron was featured by the purchasing of the American Radiator Co. which bought 62,000 tons in all, for six plants. The buying was distributed as follows: Buffalo plant, 8500 tons; Birmingham plant, 5000 tons; Chicago plant, 17,000 tons; Detroit plant, 10,500 tons; Cleveland plant, 5300 tons and Bayonne plant, 15,750. While no official confirmation can be had of the prices paid, it is believed that the buyer succeeded in obtaining an \$18.50 price on local iron. In addition to the purchase for the Buffalo plant, one of the lesser of the above tonnages is also thought to have been placed here. The H. B. Smith Co., Westfield, Mass., is understood to be in the market now for 8000 tons. Part of the 5500-ton inquiry of the Worthington company is thought to have come to a Buffalo maker, i.e., about 1500 to 2000 tons. A Pennsylvania melter is believed to have placed 5000 tons with a local furnace. An Illinois melter is seeking 2000 tons of foundry and malleable for third quarter, but this inquiry is remote from here and probably will not figure as a Buffalo sale. Several 1000-ton inquiries are out as well as one for 1500 tons and some for lesser tonnages. One maker who is inclined to be firm at \$20 base, sold close to 6000 tons, while another who has practically only No. 2 plain to sell, has been taking sizable commitments amounting to about 30,000 tons since May 1. Since the radiator purchase another maker is asking \$20 base, thus aligning three local sellers on this base price. The others range from \$19 to \$19.50 for 1.75 to 2.25 silicon. Malleable ranges from \$19 to \$20. The Lackawanna plant of Bethlehem Steel Co. has reduced operations to two furnaces and the Rogers-Brown Iron Co. is now operating three out of four. This brings the active stacks in the district to nine. Donner Steel Co. will probably place another stack in blast in July. It is reported that a Cortland melter has placed between 1000 and 2000 tons of basic at \$18.85, Buffalo.

We quote f.o.b., gross ton, Buffalo, as follows:

No. 1 foundry, sil. 2.75 to 3.25...	\$19.50 to \$20.00
No. 2 foundry, sil. 2.25 to 2.75...	19.50 to 20.00
No. 2 plain, sil. 1.75 to 2.25...	19.00 to 20.00
Basic .....	19.00
Malleable .....	19.00 to 20.00
Lake Superior charcoal.....	29.28

**Finished Iron and Steel.**—Inquiries for finished material are a little better and actual specifications improved in almost every class except bars. Inquiry for sheets for third quarter shows an aggregate of 1000 tons, including a couple of 500-ton lots still pending. One sheet maker has closed on a couple of from 100 to 200 tons for the third quarter. This business is all in black and most makers seem to be adhering to 3.65c. Only one instance is noted of 3.50c. being quoted. The plate inquiry is featured by figures asked by a Canadian concern for export to South America on 500 to 600 tons. Pipe specifications are better and the sale of one lot of 100 tons is noted. Fabricators note a falling off in the demand for fabricated shapes. A few sizable inquiries are out, but the demand for 25 to 75-ton lots has shown considerable decrease. Bolt specifications are better, a local seller having booked one good-sized order.

We quote warehouse prices, Buffalo, as follows:

Structural shapes, 3.65c.; plates, 3.65c.; soft steel bars, 3.55c.; hoops, 4.65c.; bands, 4.35c.; blue annealed sheets, No. 10 gage, 4.30c.; galvanized steel sheets, No. 28 gage, 6.10c.; black sheets, No. 28 gage, 5c.; cold-rolled and round shafting, 4.45c.

**Old Material.**—Recent railroad lists are understood to have been closed at higher prices than are being paid here. Business is at a low ebb. One large mill is still buying small lots of heavy melting steel at \$13.50, and dealers who are looking to satisfy old or compromise orders have bought some lots of heavy melting steel at \$15. The Pittsburgh market for machine shop turnings is stiffer and dealers will pay \$10.50 to \$11 for shipment there. Some Canadian offers of \$16.50 for

No. 1 cast have been received and \$17 is being offered by Canadian interest for malleable.

We quote f.o.b., gross ton, Buffalo, as follows:

Heavy melting steel.....	\$14.00 to \$15.00
Low phos., 0.04 and under.....	17.00 to 18.00
No. 1 railroad wrought.....	12.50 to 13.00
Car wheels .....	17.50 to 18.00
Machine shop turnings.....	10.00 to 10.50
Cast iron borings.....	12.00 to 12.50
No. 1 busheling.....	13.00 to 13.50
Stove plate .....	15.00 to 16.00
Grate bars .....	14.50 to 15.00
Bundled sheets .....	8.00 to 9.00
Hydraulic compressed .....	13.50 to 14.00
Railroad malleable .....	18.00 to 18.50
No. 1 machinery cast.....	16.50 to 17.50

## Boston

### Pig Iron Sales Fall Off, but Market Appears a Little Firmer

BOSTON, June 10.—In contrast with conditions in some sections of the country, New England pig iron sales show a falling off. The H. B. Smith Co., Westfield, Mass., this week is scheduled to purchase several thousand tons and if other prospects materialize, the total sales should run close to 10,000 tons. Buffalo furnaces continued to take the bulk of business at \$19 for No. 2 plain and \$19 and \$20 for No. 2X. One foundry claims \$19 can be done on No. 1X, but those Buffalo furnaces most active appear a little firmer on that grade and on higher silicons due to their sold up condition. Pennsylvania iron at \$20.50 furnace base appears less freely offered than heretofore, although buyers maintain steel mills are willing to sell on that basis. A majority of merchant furnaces, however, quote on a basis of \$21 to \$21.50. There is hardly enough activity in Virginia and Alabama irons to constitute a market, and foreign iron supplies are smaller. At the present ratio of melt in this territory, most foundries have enough iron on hand and on contract to carry them through the third quarter. For the first time in years, there is a surplus of molders. During the past week, 862 tons of Dutch iron were received at this port.

We quote delivered prices on the basis of the latest reported sales as follows, having added \$3.65 freight from eastern Pennsylvania, \$4.91 from Buffalo, \$5.92 from Virginia and \$9.60 from Alabama:

East. Penn., sil. 2.25 to 2.75.....	\$25.15 to \$26.15
East. Penn., sil. 1.75 to 2.25.....	24.65 to 25.65
Buffalo, sil. 2.25 to 2.75.....	24.41 to 25.41
Buffalo, sil. 1.75 to 2.25.....	24.41 to 24.91
Virginia, sil. 2.25 to 2.75.....	30.42 to 31.42
Virginia, sil. 1.75 to 2.25.....	29.92 to 30.92
Alabama, sil. 2.25 to 2.75.....	31.10
Alabama, sil. 1.75 to 2.25.....	30.60

**Finished Material.**—During the first week in June, some of the local plate mill representatives booked more business than in the whole of May. The general price on plates is 2c., Pittsburgh base. Most of the buying was by jobbers. Boiler shops have very little business on their books. Structural shapes are less active, there having been a slump in construction. Shapes are quoted 2.15c. base Pittsburgh. Prices on bars are weak and demand for them is of a hand-to-mouth character. In a jobbing way, iron and steel and nails are in fair request. The Luders Marine Construction Co., Stamford, Conn., has been awarded a contract to build ten 75-ft. boats for the Coast Guard Service to cost \$250,000 each.

Soft steel bars, \$3.51½ per 100 lb. base; flats, \$4.40; plain and deformed concrete bars, \$3.76½; small angles, channels and tees, \$3.51½; structural steel, large angles and beams, \$3.61½; tire steel, \$4.80 to \$5.15; open-hearth spring steel, \$5 to \$8; crucible spring steel, \$12; steel bands, \$4.31½ to \$5.20; hoops steel, \$5.80 to \$6.30; cold rolled steel, \$4.35 to \$4.85; toe calk steel, \$6.15; heavy plates, \$3.61½; light plates, \$3.86½; diamond pattern plates, stock sizes, \$5.90; blue annealed sheets, \$4.51½; refined iron bars, \$3.51½; best refined iron bars, \$4.75; Wayne, \$5.50; Norway rounds, \$6.60; Norway squares and flats, \$7.10.

**Coke.**—The foundry fuel situation remains unchanged. Specifications against contracts for June shipments of by-product coke are coming in slowly, falling considerably under those for the first half of May, and clearly indicating the falling off in the aggregate New England weekly iron melt. Both the New England Coal & Coke Co. and the Providence Gas Co. are quoting by-product fuel at \$12 delivered

in New England. Practically no interest is shown in Connellsville district coke in this territory.

**Old Material.**—Buying of old material by steel mills continues limited, and New England consumers still show little, if any, interest. Activity the past week centered in machine shop turnings, mixed borings and turnings and bundled scrap. Turnings bring \$7 to \$7.50 on cars shipping point, mixed material \$7 to \$8, and bundled skeleton generally \$8. Early in the week, mixed borings and turnings were purchased at \$6.50, but the market has stiffened since. Practically no heavy melting steel is moving and dealers do not expect any improvement in business until embargoes against shipments to the Bethlehem Steel Co. plants are lifted.

The following prices are for gross ton lots delivered consuming points:

No. 1 machinery cast.....	\$20.50 to \$21.00
No. 2 machinery cast.....	17.50 to 18.00
Stove plates.....	15.00 to 15.50
Railroad malleable.....	15.50 to 16.00

The following prices are offered per gross ton lots, f.o.b. Boston rate shipping points:

No. 1 heavy melting steel.....	\$10.00 to \$10.50
No. 1 railroad wrought.....	12.50 to 13.00
No. 1 yard wrought.....	11.50 to 12.00
Wrought pipe (1-in. in diam., over 2 ft. long).....	9.50 to 9.75
Machine shop turnings.....	7.00 to 7.50
Cast iron borings, chemical.....	8.50 to 9.00
Cast iron borings, rolling mill.....	7.00 to 7.50
Blast furnace borings and turnings.....	6.50 to 7.00
Forged scrap and bundled skeleton.....	7.00 to 8.00
Shafting.....	15.00 to 15.50
Street car axles.....	15.00 to 15.50
Rails for rolling.....	11.00 to 11.50

## Cincinnati

### Radiator Company Buys Ironton Iron at Low Price

CINCINNATI, June 10.—The American Radiator Co. is reported to have placed 3000 tons for its Springfield plant with a Lake furnace on the basis of \$19.50, Ironton. This was the largest order placed. A 3000-ton inquiry for another radiator manufacturer in southern Ohio for second half has not been placed, as furnaces are unwilling to quote for the full half, though intimating that third quarter business would be considered. Several large melters are inquiring for tonnages, a Toledo melter being in the market for 2000, a Richmond, Ind., manufacturer for 2000 for last half, and a Springfield truck manufacturer for 300 tons of malleable. There is little interest being shown in Southern iron, and carload sales of special analysis are the prevailing activity. Tennessee furnaces are reported to have taken some business at \$20, and an attractive tonnage would bring out this price in the Birmingham district. Silvery prices are weak, though carload orders are being taken at the full schedule. One merchant and one steel works furnace in southern Ohio are scheduled to go out of blast this month.

Based on freight rates of \$4.05 from Birmingham and \$2.27 from Ironton we quote f.o.b. Cincinnati:

Southern coke, sil. 1.75 to 2.25 (base).....	\$24.05 to \$25.05
Southern coke, sil. 2.25 to 2.75 (No. 2 soft).....	24.55 to 25.55
Ohio silvery, 8 per cent.....	32.77
Southern Ohio coke, sil. 1.75 to 2.25 (No. 2).....	22.27 to 23.27
Basic Northern.....	22.27
Malleable.....	22.27 to 23.27

**Sheets.**—Business is light, carload orders predominating. We note, however, a sale of three carloads at the schedule of the leading interest's subsidiary. Mills are apparently recognizing that price cutting will not help in a market like the present, and less is heard of the extremely low prices noted last week. The lowest prices quoted today are 2.75c., 3.60c. and 4.75c. respectively for blue annealed, black and galvanized.

**Structural Activity.**—The Big Four Railroad is inquiring for 600 tons of steel for bridge work on the Vincennes branch. This was the only inquiry of consequence. No lettings were reported.

**Reinforcing Bars.**—The last sections of the Cincinnati Rapid Transit Loop were bid on last week, but no awards were made. The work will require about 900 tons of bars. The Pollack Steel Co. has taken 200 tons for a sub-station of the Union Gas & Electric Co. at

Cincinnati. A number of orders for less than 100 tons were booked, making a fair aggregate. Several large projects have been held in abeyance for the time being, but are expected to be up for bids in the near future. Prices of bars are unchanged from last week, the range being from 2c. to 2.25c., mill, for rail steel and a new billet stock.

**Warehouse Business.**—The first week of June showed considerable improvement in the demand for reinforcing bars, small angles, plates and sheets, but business on the whole is rather light. Prices are unchanged.

**Finished Materials.**—Some companies reported a slightly increased volume of business during the past week, but the improvement was by no means general, and can hardly be said to have been stimulated by any increase in general manufacturing activities. Stocks are so low that even with a moderate operation by consuming interests, they must be replenished at times, and this accounts largely for the activity displayed during the week. Orders, while more numerous, were of the smallest kind. Carload business is the general rule, and prices on bars, shapes and plates range from 2.20c. to 2.25c., Pittsburgh, though it is reported that several mills will go to 2.10c. for attractive tonnages of plates. A number of carload orders for cold-rolled steel were placed on the basis of 2.90c., Pittsburgh. There is little activity in wire products, and reports are current that jobbers are holding off on intimations that a reduction in prices of wire fence is shortly to be announced. On nails \$2.90, with Ironton River rate of 15c. per keg, is becoming the general quotation. Orders for specialties, such as forgings, boiler tubes, frogs and switches and light rails, are in small volume. Bolts and nuts also are inactive, with prices practically the same as last week, and manufacturers more inclined to resist further reductions.

Cincinnati jobbers quote: Iron and steel bars, 3.50c.; reinforcing bars, 3.60c.; hoops, 4.55c.; bands, 4.25c.; shapes, 3.60c.; plates, 3.60c.; cold-rolled rounds, 4.25c.; cold-rolled flats, squares and hexagons, 4.75c.; open-hearth spring steel, 5c. to 6c.; No. 10 blue annealed sheets, 4.10c.; No. 28 black sheets, 4.80c.; No. 28 galvanized sheets, 5.85c.; No. 9 annealed wire, 3.60c.; common wire nails, \$3.40 per keg base; cement coated nails, \$3 per keg.

**Coke.**—An inquiry for 400 tons of foundry coke is current, but sales generally are consigned to single carloads. Furnace coke is not in demand. Prices on going business are unchanged from last week, though on tonnages concessions from present levels can be had.

Connellsville furnace, \$3.25; foundry, \$4.75; New River foundry, \$9 to \$10; Wise County furnace, \$4; foundry, \$4.75; by-product foundry, \$7.50; Connellsville basis.

**Old Material.**—Indications of better business have petered out and sales have been very light. Dealers continue to buy sparingly for yard stocks, this being the bulk of the activity. Prices are unchanged.

We quote dealers' buying prices, f.o.b. cars, Cincinnati:

Per Gross Ton	
Heavy melting steel.....	\$11.00 to \$11.50
Scrap rails for melting.....	10.50 to 11.00
Short rails.....	15.50 to 16.00
Relaying rails.....	27.00 to 27.50
Rails for rolling.....	12.50 to 13.00
Old car wheels.....	11.50 to 12.00
No. 1 locomotive tires.....	12.50 to 13.00
Railroad malleable.....	13.50 to 14.00
Agricultural malleable.....	12.50 to 13.00
Loose sheet clippings.....	7.00 to 7.50
Champion bundled sheets.....	9.00 to 9.50

Per Net Ton	
Cast iron borings.....	7.50 to 8.00
Machine shop turnings.....	6.50 to 7.00
No. 1 machinery cast.....	16.50 to 17.00
No. 1 railroad cast.....	13.00 to 13.50
Iron axles.....	19.50 to 20.00
No. 1 railroad wrought.....	9.00 to 9.50
Pipes and flues.....	6.00 to 6.50
No. 1 busheling.....	7.50 to 8.00
Mixed busheling.....	5.00 to 5.50
Burnt cast.....	9.00 to 9.50
Stove plate.....	9.00 to 9.50
Brake shoes.....	10.00 to 10.50

Erection of structural steel for the new buildings which will house the eight-mill sheet plant being built by the Youngstown Sheet & Tube Co., at its Brier Hill Works, Youngstown, will start at an early date. Foundations for the buildings are virtually completed. The mills will produce highly finished stock for the automobile and metal furniture industries.



## Birmingham

### Curtailment of Pig Iron Production Started— Prices Weak

BIRMINGHAM, ALA., June 10.—Curtailment of production has started in the blowing out of one blast furnace by the Woodward Iron Co., Vanderbilt furnace, and announcement of plans to blow out two more by Sloss-Sheffield Steel & Iron Co. in the near future, tells the tale of the pig iron market conditions in the South. Quotations are weak and while \$21 is given as the average quotation on No. 2 foundry, reports are current that sales have been made as low as \$20, and there are reasons for believing this is true. The production of pig iron up to this time has been steady and strong and the past month's tonnage attracted widespread attention inasmuch as it was the largest output for any month except one in several years. The Alabama Co., with one blast furnace in operation and another in shape for operation has been selling some iron for delivery into the third quarter of the year. Twenty-one dollars per ton, strong, is the quotation announced by that company. The Sloss-Sheffield Steel & Iron Co. may defer blowing out the two furnaces as planned until after the close of the month.

We quote per gross ton f.o.b. Birmingham district furnace as follows:

No. 1 foundry, 2.25 to 2.75 sil.	\$20.50 to \$21.00
No. 2 foundry, 1.75 to 2.75 sil.	20.00 to 21.00
Basic	21.50
Charcoal, warm blast	31.00

**Steel Mill Operations.**—The steel mills of Birmingham are operating on the same schedule as last week, Steel Corporation plants around 85 per cent and Gulf States Steel Co. about one-third capacity. Some shapes of steel have been accumulated in quantity.

**Cast Iron Pipe.**—Lettings for cast iron pipe are still a little slow though some business is reported week after week. The pressure or large sized pipe making plants are being kept in full operation with no intimation of an early lagging. Several specifications are being bid on. Quotations remain about the same though indicating weakness. Soil pipe and fittings manufacturers are without much business. Pressure pipe makers are making prompt delivery, anxiety being shown to get pipe started to destination as quickly as possible.

We quote class B, 4-in. water, \$52 to \$53; 6-in. and over, \$48 to \$49; class A, \$5 higher; standard soil pipe, \$60; heavy gage, \$45; standard fittings, \$110.

**Coke.**—Coke production in this State remains undisturbed and quotations are not participating in the general weakness of other products. Foundry coke is being held at around \$6 per ton and while sales are in small lots there is a desire for prompt delivery. Not until there has been a wider deflection in the iron production will any attempt be made at reducing the make of coke. The activity in coke will continue into the third quarter, as estimated at present, with possibilities of continuing through the year, an optimistic strain being discernible in some of the predictions as to the future.

**Scrap.**—There is very little demand for scrap iron and steel and all quotations are weak. The price list is nominal, though those who are buying a little are making offers and are being accommodated. All old material dealers have plenty of stock on hand. No intimation whatsoever is given that there is likely to be any increase in old material buying in the near future.

We quote per gross ton f.o.b. Birmingham district yards as follows:

Cast iron borings, chemical	\$15.00 to \$16.00
Heavy melting steel	13.50 to 14.00
Railroad wrought	11.50 to 12.00
Steel axles	17.00 to 18.00
Iron axles	20.00 to 20.50
Steel rails	13.00 to 14.00
No. 1 cast	18.50 to 19.00
Tram car wheels	17.00 to 18.00
Car wheels	16.00 to 17.00
Stove plate	15.50 to 16.50
Machine shop turnings	7.00 to 8.00
Cast iron borings	7.50 to 8.50
Rails for rolling	15.50 to 16.00

## St. Louis

### Round Tonnages of Pig Iron Sold to Radiator Company—Basic Also Bought

ST. LOUIS, June 10.—The most healthy sign of a revival in buying of pig iron was the purchase during the week of 10,000 tons of basic iron from the St. Louis Coke & Iron Co. by an East Side melter for nearby shipment, and an inquiry for 16,000 tons of foundry iron for a radiator concern for one plant in Illinois, one in Indiana and one in Missouri. The Granite City maker also sold 1400 to 1800 tons of foundry iron in small lots. There is an inquiry for 1500 tons of foundry and 1000 tons of malleable for an Illinois melter for third quarter delivery and scattering inquiries for carloads up to 150 tons amounting to about 1500 tons. There is very little change in prices. Southern iron is quoted at \$20 to \$21, Birmingham; Northern at \$22, Chicago, and Granite City, \$23 to \$23.50, although these quotations are nominal and better quotations probably could be had. The St. Louis Coke & Iron Co. blew in its Granite City furnace on June 6. It was blown out for relining on April 14, being out 53 days. As to whether the Carondelet furnace owned by the Mississippi Valley Iron Co. and operated by the Granite City interests under a temporary arrangement, will be continued to be operated by them is not known.

We quote delivered consumers' yards, St. Louis, as follows, having added to furnace prices \$2.16 freight from Chicago, \$3.28 from Florence and Sheffield (rail and water), \$5.17 from Birmingham, all rail, and 81c. average switching charge from Granite City:

Northern fdy., sil. 1.75 to 2.25	\$24.16 to \$26.16
Northern malleable, sil. 1.75 to 2.25	24.16 to 25.16
Basic	24.16 to 25.16
Southern fdy., sil. 1.75 to 2.25 (rail)	25.17 to 26.17
Southern foundry, sil. 1.75 to 2.25 (rail and water)	23.28 to 24.28
Granite City iron, sil. 1.75 to 2.25	23.81 to 24.81

**Coke.**—The principal transaction in coke during the week was the purchase of 75 carloads of by-product coke for heating purchased by a local industry. Dealers seem more inclined to take on shipments of domestic grades.

**Old Material.**—A few specialties are higher as the result of competition among dealers, who seem to have more faith in the market than consumers, who are buying very little, except when they think prices are right. Railroad lists offered last week brought better prices. The new lists this week follow: Union Pacific, 2300 tons; Mobile & Ohio, 1700 tons; Great Northern, 3000 tons, including 500 car wheels; Pullman Co., 300 tons, and Wabash, 180 tons.

We quote dealers' prices f.o.b. consumers' works, St. Louis industrial district and dealers' yards, as follows:

Per Gross Ton	
Iron rails	\$12.00 to \$12.50
Rails for rolling	14.00 to 14.50
Steel rails less than 3 ft.	15.00 to 15.50
Relaying rails, 60 lb. and under	25.00 to 26.00
Relaying rails, 70 lb. and over	32.50 to 33.50
Cast iron car wheels	14.00 to 14.50
Heavy melting steel	13.00 to 13.50
Heavy shoveling steel	13.00 to 13.50
Frogs, switches and guards cut apart	13.50 to 14.00
Railroad springs	15.75 to 16.25
Heavy axles and tire turnings	10.00 to 10.50
No. 1 locomotive tires	14.50 to 15.00
Per Net Ton	
Steel angle bars	12.50 to 13.00
Steel car axles	15.00 to 15.50
Iron car axles	21.00 to 21.50
Wrought iron bars and transoms	15.50 to 16.00
No. 1 railroad wrought	10.25 to 10.75
No. 2 railroad wrought	11.00 to 11.50
Cast iron borings	8.50 to 9.00
No. 1 busheling	11.50 to 12.00
No. 1 railroad cast	16.00 to 16.50
No. 1 machinery cast	17.50 to 18.00
Railroad malleable	13.50 to 14.00
Machine shop turnings	5.50 to 6.00
Champion bundled sheets	7.50 to 8.00

**Finished Iron and Steel.**—The contract for the first unit of the Nugent Department store has been let; 1000 tons of structural steel going to the American Bridge Co. and 500 tons of reinforcing bars to the Laclede Steel Co. The next big job in prospect is the new home of the Southwestern Bell Telephone Co.—a 22-story

building. The reinforcing bars for the Commodore Garage, 225 tons, went to the Laclede Steel Co., and there is pending 125 tons for a garage at Eleventh and Walnut Streets. The largest railroad inquiry for some time came from the Missouri Pacific for 2000 kegs of track bolts. Other interests are marking time.

For stock out of warehouse we quote: Soft steel bars, 3.35c. per lb.; iron bars, 3.35c.; structural shapes, 3.45c.; tank plates, 3.45c.; No. 10 blue annealed sheets, 4.10c.; No. 28 black sheets, cold-rolled, one pass, 5c.; cold rolled rounds, shafting and screw stock, 4.15c.; structural rivets, 3.90c.; boiler rivets, 4.10c.; tank rivets,  $\frac{1}{2}$ -in. and smaller, 60 per cent off list; machine bolts, 55 and 5 per cent; carriage bolts, 40-5 per cent; lag screws, 60 and 5 per cent; hot pressed nuts, squares or hexagon, blank or tapped, \$3.50 off list.

## Cleveland

### Pig Iron Prices Reduced on Westinghouse Purchase—Moderate Activity

CLEVELAND, June 10.—The volume of business shows little change. Plants in the metal working industry in this territory are operating at an average of approximately 75 per cent and consumers are still buying from hand to mouth and as a rule their stocks have become low. There are as yet no signs of increased activity in the automobile industry. While production in this field has continued to dwindle, some revival is looked for when more seasonable weather enables car builders to work off their surplus stocks. One leading Ohio parts manufacturer is still operating at capacity although many others have curtailed production. There are few new developments in the price situation and there are some indications that prices are being stabilized around present levels. On plates 2.15c. is now being quoted by one or more mills that have been on a higher basis and 2.10c. is still appearing. However, some of the mills find no trouble in booking car lot orders at 2.20c. Steel bars are still holding firmly to 2.20c. That is also the ruling price on structural material, but there is evidence that this is being shaded. Inquiry in the building field has again fallen off and there is little other inquiry for round lots of material for specific work. The Standard Oil Co. has placed stills requiring 300 tons of plates which have been pending for several weeks and the Louisville & Nashville Railroad has taken bids for 350 tons. Hot-rolled strip steel continues weak with 2.50c. as the common quotation for wide, 2.60c. for narrow material and up to 2.75c. for hoops and bands. Cold-rolled strip still is commonly quoted at 4.50c., but this price has been shaded on round lot business. Weakness has developed in alloy steels, on which shading of  $\frac{1}{4}$ c. per lb. on regular quotations is reported. Owing to the limited demand in the automotive field, production has been largely decreased.

Jobbers quote steel bars, 3.36c.; plates and structural shapes, 3.46c.; No. 28 black sheets, 4.55c. to 4.65c.; No. 28 galvanized sheets, 5.65c.; No. 10 blue annealed sheets, 3.65c.; cold rolled rounds, 3.90c.; flats, squares and hexagons, 4.40c.; hoops and bands, 1 in. and wider and 20 gage or heavier, 4.16c.; narrower than 1 in. or lighter than No. 20 gage, 4.66c.; No. 9 annealed wire, \$3.30 per 100 lb.; No. 9 galvanized wire, \$3.75 per 100 lb.; common wire nails, \$3.40 base per 100 lb.

**Pig Iron.**—A moderate volume of business developed during the week, but prices have further weakened and at present Lake and Valley furnaces have no definite market price for lots of any size for delivery to points that are competitive. The common price quoted by these furnaces is \$20 and Lake furnaces made several sales at that price during the week, some of which were in competition with the Valley furnaces. However, in the last day or two the market has become weaker and it is well established that \$20 has been shaded and buyers report quotations as low as \$19. In Cleveland prices have declined \$1 a ton to \$21 furnace for local delivery, at which a 500-ton sale was made Monday. To meet this price Valley furnaces will have to go below \$20. The American Radiator Co. has placed with two Lake furnaces about 13,000 tons of foundry iron in this territory—5000 tons for Springfield and 8000 tons for Detroit. The Westinghouse Electric & Mfg. Co. is understood to have purchased 3100 tons of foundry iron for its Cleve-

land plant from a Cleveland producer at \$20.50 or 50c. lower than the present ruling quotation. Local producers during the week sold about 20,000 tons. In steel making iron a local interest took 1000 tons of basic iron for delivery in the Pittsburgh district from a western Pennsylvania furnace at \$20 at furnace. This price figures back slightly below \$20 Valley. Inquiry is less active than a week ago, although one producer has several inquiries aggregating 10,000 tons, including one for 5000 tons.

Quotations below, except on basic and low phosphorus iron, are delivered Cleveland, and for local iron include a 50c. switching charge. Ohio silvery and Southern iron prices are based on a \$3.02 freight rate from Jackson and \$6 rate from Birmingham:

Basic, Valley furnace.....	\$20.00
N't'n No. 2 fdy., sil. 1.75 to 2.25	21.50
Southern fdy., sil. 1.75 to 2.25...	27.00
Malleable .....	21.50
Ohio silvery, 8 per cent.....	33.52
Stand. low phos., Valley furn....	\$27.00 to 27.50

**Iron Ore.**—Several orders for ore aggregating 100,000 tons were taken by a local interest during the week. Generally the market continues dull with the demand limited to small lots for early requirements. Ore on Lake Erie docks June 1 amounted to 4,890,946 gross tons as compared with 4,798,572 tons on May 1 and with 4,347,271 tons on June 1 last year. Receipts at Lake Erie ports during May were 4,314,582 tons as compared with 4,264,454 tons in May last year. Shipments from these docks during the month were 3,353,271 tons as compared with 4,041,956 tons during May last year.

**Foundry Iron.**—Considerable inquiry is coming in this territory from the East, those pending including one for 2000 tons of foundry iron from the Richmond Radiator Co. for delivery at Norwich, Conn. Low phosphorus iron is weak.

**Coke.**—The foundry coke market is weaker and some grades of Connellsville coke are now being offered at \$4.25. Prices on some of the better grades are unchanged with a range of from \$4.75 to \$6.

**Bolts, Nuts and Rivets.**—Several leading bolt and nut manufacturers have made a slight revision downward on some of the regular discounts and are now generally quoting machine bolts at 60 and 20 per cent off list instead of 60, 10 and 10 per cent off list. The market continues dull although some makers report a slight improvement in orders. Prices are still irregular. Rivets are inactive with sales within the range of prices that have prevailed for some time.

**Semi-Finished Steel.**—Some inquiry is coming out for small lots of sheet bars which are commonly quoted at \$40, although there are reports that a \$39 price has been named. Billets and slabs are unchanged at \$38.

**Sheets.**—Prices are holding firmer than recently to 3.65c. for black, 2.80c. for blue annealed and 4.80c. for galvanized sheets. The demand continues light and mills cannot see that price concessions will stimulate business. Consequently, some that have been naming lower prices are now adhering to the above quotations. The demand from the automotive industry is very light.

**Reinforcing Bars.**—An inquiry has come out for 400 tons of reinforcing bars for the Union Station, Cleveland, for which considerable additional similar material is expected to be required before the end of the year. Bids have been taken for 250 tons for buildings for the Columbus Bolt & Nut Works, Columbus, Ohio, and for 100 tons for settling tanks for the Akron Water Works. The Republic Structural Iron Works has taken 180 tons for a building for the W. S. Tyler Co., Cleveland. Softness has developed in rerolled steel bars, on which quotations of 1.80c. at mill have been made. Other quotations range up to 2.10c. On billet steel bars 2.15c. Pittsburgh is being named.

**Old Material.**—The recent firmness has disappeared from the scrap market although in the absence of buying by consumers prices remain at recent levels. There is some activity on the part of dealers who bought blast furnace borings and turnings for local delivery consumption at \$13 delivered. Consumers recently paid \$13.50 for this grade, but it is doubtful whether they would pay over \$13 today. Dealers are paying \$11.50 to



\$12 for machine shop turnings for delivery to local blast furnaces. Steel making scrap is inactive. There is some demand for heavy melting steel to fill contracts in the Valley district where dealers are paying \$15.50 to \$16 for this grade. The Pennsylvania Railroad is understood to have sold 8000 to 10,000 tons of heavy melting steel last week at \$16.75 to a Pittsburgh district dealer.

We quote dealers' prices f.o.b. Cleveland per gross ton:

Heavy melting steel.....	\$14.00 to \$14.25
Rails for rolling.....	15.50 to 16.00
Rails under 3 ft.....	16.25 to 16.75
Low phosphorus melting.....	16.50 to 16.75
Cast iron borings.....	12.50 to 12.75
Machine shop turnings.....	11.75 to 12.00
Mixed borings and short turnings.....	12.50 to 12.75
Compressed sheet steel.....	12.00 to 12.25
Railroad wrought.....	12.00 to 12.25
Railroad malleable.....	17.50 to 18.00
Light bundled sheet stampings.....	11.50 to 12.00
Steel axle turnings.....	12.50 to 13.00
No. 1 cast.....	20.00 to 20.50
No. 1 busheling.....	11.25 to 11.75
Drop forge flashings.....	9.00 to 9.25
Railroad grate bars.....	13.25 to 13.50
Stove plate.....	13.25 to 13.50
Pipes and flues.....	9.25 to 9.50

## Philadelphia

### Low Prices on Foundry Pig Iron Brought Out by the Week's Sales

PHILADELPHIA, June 10.—Local steel sales offices report a slight increase in the number of small orders during the past week. It is too early to determine whether this is the forerunner of a general improvement in buying, and sales managers are not inclined to attach much significance to the increase, which is small in tonnage. The most talked-of event of the week in the steel trade is the awarding of an order for 11,000 tons of plates, shapes and bars by the Chesapeake & Ohio Railroad to the Inland Steel Co. of Chicago. It had not been expected that a Western mill would be able to meet the price inducements offered by Eastern mills. The latter, it is stated, had quoted as low as 2c., Pittsburgh, on the entire tonnage, which consisted largely of plates.

Sales of pig iron have been small compared with the tonnage of the week before, but one furnace company, which has virtually been out of the market for several weeks, sold 5000 tons at prices varying from \$20 to \$20.50, furnace. The scrap market has not gained strength but the undertone is firm.

**Ore.**—Receipts of foreign ore at this port last week were as follows: Iron ore, 5310 tons from Algeria and 510 tons from Germany; manganese ore: from Brazil, 1437 tons.

**Ferroalloys.**—Sales of ferromanganese are confined to occasional carload lots. The price remains nominally at \$107.50, furnace or seaboard, for domestic and foreign alloy.

**Pig Iron.**—There is a fair volume of pig iron business in sight, but orders in the past week were considerably smaller than those of the week before. A Westfield, Mass., consumer is inquiring for 7000 tons; a heating company in New Jersey has asked for prices on 5000 tons and a radiator company at Trenton, N. J., is in the market for 2000 tons. A test of the foundry iron market was made a few days ago by a furnace company, which authorized its selling agents to dispose of 5000 tons of foundry grades. The iron was readily sold, mostly in lots of a few hundred tons each, at prices ranging roughly from \$20 to \$20.50, furnace, for the base grade. The lowest price was \$20.25, furnace, on a few hundred tons of No. 2X. Opinions among sellers are divided as to the probable course of the pig iron market and prices over the next month or two. There are some who believe that further concessions are possible, while others take the view that prices are as low as they will go and that the restriction in output will effect an improvement in 30 to 60 days. The fact remains that there are still large stocks in furnace yards, but there is less urgency in selling at prices below cost

of production by companies whose furnaces are no longer in blast. The Hokendauqua furnace of the Reading Iron Co. will go out of blast this week. Receipts of pig iron from abroad last week included 1382 tons from Germany; 40 tons came from France.

The following quotations are, with the exception of those on low phosphorus iron, for delivery at Philadelphia and include freight rates varying from 76c. to \$1.63 per gross ton:

East. Pa. No. 2 plain, 1.75 to 2.25 sil.	\$20.76 to \$22.13
East. Pa. No. 2X, 2.25 to 2.75 sil.	21.26 to 22.63
East. Pa. No. 1X.....	21.76 to 23.13
Virginia No. 2 plain, 1.75 to 2.25 sil.	30.17 to 31.17
Virginia No. 2X, 2.25 to 2.75 sil.	30.67 to 31.67
Basic delivered eastern Pa.....	21.00 to 21.50
Gray forge.....	22.00 to 22.50
Malleable.....	22.50 to 23.50
Standard low phos. (f.o.b. furnace)	24.00 to 25.00
Copper bearing low phos. (f.o.b. furnace)	24.00 to 25.00

**Billets.**—No business of enough importance to test the semi-finished material market has appeared recently, hence prices remain unchanged at \$38 for rerolling quality and \$43 for forging quality, Pittsburgh base.

**Plates.**—With the Chesapeake & Ohio Railroad car tonnage out of the market, one of the recent unsettling factors in the plate market is no longer to be reckoned with. There is now a stronger inclination to hold to 2c., Pittsburgh, on the ordinary run of plate orders, although it is admitted that large tonnages would command lower prices. The C. & O. purchase consists of 11,000 tons, mostly plates, which will be shipped to the plant of the Newport News Shipbuilding & Dry Dock Co. for the construction of 1000 freight cars.

**Structural Material.**—The City of Philadelphia has asked for bids by July 15 on 9300 tons of fabricated steel for the first section of the new Philadelphia subways. The entire project will require fully 50,000 tons. Plain material is selling at 2.10c., Pittsburgh. The only shipment of steel received here from abroad last week was 268 tons of shapes from Belgium.

**Bars.**—A slightly better demand for steel bars has developed within the past week, but orders are small. Quotations of nearly all bar producers are now on the basis of 2.20c., Pittsburgh. Bar iron is quoted at 2.10c., Pittsburgh, by Eastern mills.

**Old Material.**—The scrap trade is waiting for buyers, but there is very little demand. Prices are virtually the same as a week ago, no weaker and no stronger. Consumers know that inquiries for large tonnages will undoubtedly bring about higher prices, so they are contenting themselves with purchases of carload lots at current quotations.

We quote for delivery at consuming points in this district as follows:

No. 1 heavy melting steel.....	\$15.00 to \$15.50
Scrap rails.....	15.00 to 15.50
Steel rails for rolling.....	17.00 to 17.50
No. 1 low phos., heavy 0.04 and under.....	19.00 to 20.00
Couplers and knuckles.....	18.50 to 19.00
Cast-iron car wheels.....	17.00 to 17.50
Rolled steel wheels.....	18.50 to 19.00
No. 1 railroad wrought.....	16.50 to 17.00
No. 1 yard wrought.....	16.00 to 16.50
No. 1 forge fire.....	13.00 to 13.50
Bundled sheets (for steel works)	12.50 to 13.00
Mixed borings and turnings (for blast furnace use).....	11.00 to 11.50
Machine shop turnings (for steel works use).....	12.00 to 12.50
Machine shop turnings (for rolling mill use).....	12.00 to 12.50
Heavy axle turnings (or equivalent).....	14.00 to 14.50
Cast borings (for steel works and rolling mills).....	13.00
Cast borings (for chemical plants).....	14.00 to 14.50
No. 1 cast.....	17.50 to 18.00
Heavy breakable cast (for steel plants).....	16.00
Railroad grate bars.....	14.00 to 14.50
Stove plate (for steel plant use).....	14.00 to 14.50
Wrought iron and soft steel pipes and tubes (new specifications).....	15.00
Shafting.....	22.00 to 22.50
Steel axles.....	20.00 to 21.00

**Spikes.**—Makers of railroad and boat spikes have put into effect a new card of extras, which increases net prices on all except base sizes from \$3 to \$13 a ton. The new extras are published elsewhere in this issue.

**Warehouse Business.**—Although prices for steel out of stock are unchanged, concessions are being offered

by a number of distributors. For local delivery quotations are as follows:

Soft steel bars and small shapes, 3.47c.; iron bars (except bands), 3.47c.; round edge iron, 3.50c.; round edge steel, iron finished,  $1\frac{1}{2}$  x  $\frac{1}{2}$  in., 3.50c.; round edge steel planished, 4.30c.; tank steel plates,  $\frac{1}{4}$  in. and heavier, 3.57c.; tank steel plates,  $\frac{1}{2}$  in., 3.82c.; blue annealed steel sheets, No. 10 gage, 3.90c.; black sheets, No. 28 gage, 4.95c.; galvanized sheets, No. 28 gage, 6c.; square twisted and deformed steel bars, 3.47c.; structural shapes, 3.57c.; diamond pattern plates,  $\frac{1}{4}$ -in., 5.30c.;  $\frac{1}{2}$ -in., 5.50c.; spring steel, 5c.; round cold-rolled steel, 4.35c.; squares and hexagons, cold-rolled steel, 4.85c.; steel hoops, 1 in. and wider, No. 20 gage and heavier, 4.27c.; narrower than 1 in., all gages, 4.77c.; steel bands, No. 12 gage to  $\frac{1}{2}$ -in., inclusive, 4.27c.; rails, 3.47c.; tool steel, 8.50c.; Norway iron, 7c.

### Detroit Scrap Market

DETROIT, June 10.—The automotive industry is still operating on a reduced production basis but melters are expecting some pickup with the advent of new models. Radiator and stove and furnace manufacturers are operating at near capacity, while malleable and jobbing shops are producing on a 50 per cent basis. Inventories on raw materials are very low. Prices same as quoted week ago.

The following prices are quoted on a gross ton basis f.o.b. cars producers' yards, excepting stove plate, No. 1 machinery cast and automobile cast, which are quoted on a net ton basis:

Heavy melting steel.....	\$12.50 to \$13.50
Shoveling steel .....	12.50 to 13.50
Borings .....	9.50 to 10.50
Short turnings .....	9.50 to 10.50
Long turnings .....	8.50 to 9.00
No. 1 machinery cast .....	15.00 to 16.00
Automobile cast .....	21.00 to 23.00
Hydraulic compressed.....	10.00 to 10.50
Stove plate .....	13.50 to 14.50
No. 1 busheling .....	9.50 to 10.50
Sheet clippings .....	8.00 to 8.75
Flashings .....	9.00 to 9.75

### Alan Wood Plant to Be Improved

The Alan Wood Iron & Steel Co., Widener Building, Philadelphia, plans extensive improvements to its steel plants. The Schuylkill Iron Works, the sheet department at Conshohocken, Pa., will be expanded by the construction of a one-story mill building, 95 x 360 ft., and a number of the mills will be remodeled. The sheet mill capacity will be increased 20 or 25 per cent. The blooming mill at the Ivy Rock plant will discontinue operation July 1 and will be completely remodeled, resuming work about Aug. 1.

Civil service examinations are announced for mechanical draftsmen to fill vacancies in the Patent Office at Washington and for ship draftsman to fill a vacancy in the Coast Guard, Treasury Department. Information and blanks may be obtained by addressing the United States Civil Service Commission, Washington.

Range boilers and expansion tanks, as now simplified in number of sizes, are the subject of Simplified Practice Recommendation No. 8 of the Bureau of Standards, published in pamphlet form for sale at 5 cents a copy by the Superintendent of Documents, Government Printing Office, Washington.

Over 60,000 engineering graduates and undergraduates will be seeking employment during the month of June, according to E. B. Miller, employment secretary American Association of Engineers, 63 East Adams Street, Chicago.

The plant at Sharpsville, Pa., of Valley Mould & Iron Corporation, has resumed after two weeks' shut-down.

## OBITUARY

EDWARD C. SHANKLAND, steel construction expert who carried out the engineering plans in the construction of the Chicago World's Fair in 1893, died in Chicago on June 4. He was internationally known as an engineer and a pioneer in the construction of modern skyscrapers. He was born in Pittsburgh Aug. 2, 1854, and received his education in the public schools of that city and the Rensselaer Polytechnic Institute, from which he was graduated in 1878 as a civil engineer. He later attended Cornell University. He was engaged on the work of improvement of the Missouri and Mississippi rivers from 1878 to 1883, and from 1883 to 1889 paid much attention to bridge building in Canton, Ohio. In 1889 he turned his attention to designing buildings of steel construction and was engineer for Burnham & Root, Pittsburgh. Since 1898 he had been a member of the engineering firm of E. C. & A. M. Shankland, Chicago. Mr. Shankland was a member of Chicago's Harbor Subway Commission from 1911 to 1916, and was identified with a number of engineering societies.

MORTON CARTER SWIFT, retired, formerly president and treasurer of the Malleable Iron Works, New Britain, Conn., died at his home in that city on June 6. He was born in Warren, Conn., in 1843, and went to New Britain in 1859, becoming bookkeeper at the North & Judd Mfg. Co. Later he became associated with the Malleable Iron Works.

JOHN T. HORTON, president John T. Horton, Inc., 2970 Eighth Avenue, New York, manufacturer of hoisting equipment, died May 25.

VISCOUNT PIRRIE, head of the firm of Harland & Wolff, ship-builders of Belfast, Ireland, died suddenly on the night of June 8, on board the steamship Ebro, aged 77 years. He was on his way to New York. Lord Pirrie was an active and progressive figure in the field of ship-building and his death is regarded by many as a distinct loss to the industry.

### Quenching Properties of Glycerin and Its Water Solutions

The cooling power of glycerin and its water solutions as well as that of an oil-water emulsion has been examined by the Bureau of Standards for the purpose of finding quenching media to span the gap between water and oil. From experimental quenching curves giving the rate of cooling at the center of a 1-in. cylinder of 32 per cent nickel steel, it was found that glycerin-water solutions accomplish this purpose effectively and that, moreover, they have characteristics distinctive from those of oil and apparently in their favor.

The observations on the cooling rates of the baths were confirmed by observations of the hardening of deep-hardening steels in the several baths. The hardness of these steels, measured by the scleroscope and Rockwell tests, increased slightly but definitely with the cooling rate, and the higher hardness of the faster cooled steels was maintained on tempering at low temperatures. This variation in hardness was correlated with the cooling rate during the hardening transformation and is therefore probably a transient tempering phenomenon.

By mathematical analysis of the results, cooling constants of the several baths have been approximately evaluated and curves plotted from which the cooling rate at the center and the temperature differences between center and convex surfaces of long cylinders of any diameter can be estimated under certain limitations.

At Youngstown, the May payroll figures, announced June 10, of \$6,656,334, represent a decline of \$542,826 from April distribution, reflecting intermittent employment due to irregular steel property operation.



## To Sell War-Built Plant at Gloucester, N. J., at Auction

The war plant and ship-building yards at Gloucester, N. J., erected by the Pusey & Jones Co., are to be sold at receivers' auction by order of the District Court of the United States, for the District of New Jersey, Willard Saulsbury, Charles B. Evans and Joseph P. Tumulty, ancillary receivers and special masters. The sale will be held by Joseph P. Day on June 26, in the administration building, on the premises, at 2 o'clock (daylight saving time).

The plant consists of 179 acres of land, a number of brick and steel manufacturing and administration buildings, a power plant, machinery, cranes, equipment, etc. The property, which has a large frontage on the Delaware River, has deep water, good facilities, railroad connections and trucking roads.

To meet the requirements of those who may wish to purchase either the plant as an entirety or a portion of it, the following methods of sale have been decided upon:

- (1) The real estate, including buildings, machinery, tools, equipment, etc., will be offered as a whole.
- (2) Then all of the real estate and buildings will be offered as a whole excluding the machinery.
- (3) The machinery will be offered as a whole without the real estate.
- (4) The real estate will be sold in seven different parcels together with the machinery, tools, appliances, etc., located on these various parcels.
- (5) Finally the machinery and personal property will be sold item by item as designated by the receivers.

During the war, Pusey & Jones Co. erected a large number of substantially constructed brick and steel buildings on the property, which today is well adapted for light and heavy manufacturing of practically every description. Twenty-two ships were built at the plant during the war and a number of others repaired.

Diagonally opposite the plant is the U. S. Navy Yard at League Island. When the new Delaware River bridge between Camden and Philadelphia is completed, a direct automobile highway from Gloucester to Philadelphia, via Camden, will have been established.

## Trumbull-Cliffs Coke Ovens Will Soon Be Placed in Operation

Ovens of the new 47-unit by-product coke plant being built at Warren, Ohio, by the Trumbull-Cliffs Furnace Co. will receive their first warming this month and coke will be made on trial runs. The H. Koppers Co., Pittsburgh, designed and supervised the plant, its regenerative type ovens being installed. Its estimated cost is \$3,000,000. It will furnish coke to the 600-ton blast furnace of the company, while part of the gas and other by-products will be utilized by the Trumbull Steel Co., whose open-hearth furnaces consume the hot metal produced by the stack.

The blast furnace is now inactive for repairs and overhauling. It is expected both the by-product coke oven plant and the furnace will be ready for operation by the middle of July.

## Activities of the Youngstown Steel Car Co.

The Youngstown Steel Car Co., Niles, Ohio, has just completed for the New York Central Railroad the first all-steel box car ever manufactured in the Mahoning Valley. It is the first car in an order for 500 placed by the carrier for its Rutland branch in northern Vermont. Each car of this type, with a carrying capacity of 40 tons, costs about \$2,500, and the total contract therefore involves \$1,250,000. The company estimates it will require 60 days to complete the contract.

The Youngstown Steel Car Co. is completing for the New York Central another contract involving the rebuilding and conversion of 500 wooden-side gondola cars into flat tops. These two jobs are expected to keep the company's plant at Niles well occupied until September.

It is estimated the first contract referred to will require 4000 tons of steel and 150 carloads of lumber.

The company is also filling an order from the Pennsylvania Railroad for 4000 steel doors for box cars, of special design. It has heretofore specialized in heavy repair contracts for gondola, hopper and box cars, but is now entering in a more active way into the construction of new cars.

## Steel Ingot Production Curtailed in Mahoning Valley

YOUNGSTOWN, June 10.—The most noticeable change this week, in operating schedules of Mahoning Valley iron and steel plants, is the decline in independent steel ingot production, which drops to a 25 per cent average. Of 52 independent open-hearth furnaces in the Valley, but 15 were scheduled at the beginning of the week, and four of these, at the Lowellville, Ohio, plant of the Sharon Steel Hoop Co., were to go down before the end of the week. Heretofore, independents have maintained an average of 21 or 22 open-hearths in action. All independent Bessemer plants are suspended.

The Carnegie Steel Co. is operating 15 of 30 open-hearths, divided between its Ohio Works at Youngstown and its Farrell, Pa., plant. It is operating two Bessemer departments in this territory at 50 per cent.

Iron production remains unchanged, with 15 of 45 blast furnaces in the district, embracing the Mahoning and Shenango Valleys, pouring.

While sheet mill schedules are weak, they hold up well as compared with the preceding week. Of 120 sheet and jobbing mills in the Mahoning Valley, 55 were scheduled Monday, with indications that other mills would start rolling before the week is over. Tin plate production is being maintained at a 70 per cent average rate in the district.

## Lake Iron Ore Shipments in May

Shipments of iron ore from the Lake Superior region in May were 6,583,815 gross tons, or 1.32 per cent less than in May, 1923, when the total was 6,671,705 tons. This is a decrease of 87,890 tons for May, this year. In May, 1923, there was an increase of 320.85 per cent over May, 1922. The comparative shipments by ports for May, 1923, and May, 1924, and for the season were as follows in gross tons:

	May, 1923	May, 1924	To June 1	
			1923	1924
Escanaba .....	929,960	530,722	944,144	629,064
Marquette .....	288,668	241,108	288,668	253,225
Ashland .....	747,104	858,854	747,104	930,882
Superior .....	1,793,025	2,008,772	1,793,025	2,232,836
Duluth .....	2,027,300	2,139,107	2,027,300	2,275,954
Two Harbors.....	885,648	805,252	885,648	921,241
Total .....	6,671,705	6,583,815	6,685,889	7,243,202
Decrease .....		87,890		
Increase .....				557,313

The increase to June 1 this year is 8.34 per cent as compared with the same date in 1922, or 557,313 tons. A year ago the increase as compared with 1922 was 4,964,423 tons. The Duluth and Superior percentage of the total to June 1 this year was 62.25 per cent against 57.14 per cent last year. The Escanaba proportion of the total was 8.69 per cent as compared with 14.13 per cent last year. Duluth's percentage of the total this year was 31.42 as compared with only 30.32 per cent to June 1, last year.

A standard general specification for galvanized steel wire strand has been issued by the Canadian Engineering Standards Association as pamphlet No. B 12—1924. Canadian buyers were calling for upward of 30 different varieties and it was found that materials used by manufacturers in filling a large number of the orders could be classified under three grades, namely: a low carbon steel wire ranging in tensile strength from 70,000 to 75,000 lb. per sq. in.; a wire of similar material, but somewhat harder drawn, of which the smaller sizes showed an ultimate tensile strength up to 120,000 lb. per sq. in., and an annealed crucible steel wire of higher carbon content, of which the smaller sizes had a tensile strength as high as 210,000 lb. per sq. in.

# Prices Finished Iron and Steel f.o.b. Pittsburgh

Carload Lots

## Plates

Sheared, tank quality, base, per lb. .... 2.20c. to 2.25c.

## Structural Materials

Beams, channels, etc., base, per lb. .... 2.20c. to 2.25c.  
Sheet piling ..... 2.30c. to 2.40c.

## Iron and Steel Bars

Soft steel bars, base, per lb. .... 2.20c. to 2.25c.  
Soft steel bars for cold finishing ..... \$3 per ton over base  
Reinforcing steel bars, base ..... 2.20c. to 2.25c.  
Refined iron bars, base, per lb. .... 3c.  
Double refined iron bars, base, per lb. .... 4.75c.  
Stay bolt iron bars, base, per lb. .... 6.50c. to 7.00c.

## Hot-Rolled Flats

Hoops, base, per lb. .... 2.75c.  
Bands, base, per lb. .... 2.75c.  
Strips, base, per lb. .... 2.50c. to 2.75c.

## Cold-Finished Steel

Bars and shafting, base, per lb. .... 2.90c.  
Bars and shafting, l.c.l., per lb. .... 2.90c. to 3.00c.  
Bars, S. A. E. Series, No. 2100 ..... 4.75c.  
Bars, S. A. E. Series, No. 2300 ..... 6.25c.  
Bars, S. A. E. Series, No. 3100 ..... 6.25c.  
Strips, base, per lb. .... 4.50c.

## Wire Products

(To jobbers in car lots)

Nails, base, per keg ..... \$2.90  
Galvanized nails, 1 in. and over ..... \$2.25 over base  
Galvanized nails, less than 1 in. .... 2.50 over base  
Bright plain wire, base, No. 9 gage, per 100 lb. .... \$2.65  
Annealed fence wire, base, per 100 lb. .... 2.80  
Spring wire, base, per 100 lb. .... 3.70  
Galvanized wire No. 9, base, per 100 lb. .... 3.25  
Galvanized barbed, base, per 100 lb. .... 3.70  
Galvanized staples, base, per keg ..... 3.70  
Painted barbed wire, base, per 100 lb. .... 3.35  
Polished staples, base, per keg ..... 3.35  
Cement coated nails, base, per count keg ..... 2.35  
Bale ties, carloads to jobbers  
75, 5, 5 and 2 1/2 to 75 and 5 per cent off list  
Woven fence, carloads (to jobbers) ..... 67 1/2 per cent off list  
Woven fence, carloads (to retailers) ..... 65 per cent off list

## Bolts and Nuts

Machine bolts, small, rolled threads,  
60, 20 and 10 per cent off list  
Machine bolts, all sizes, cut threads. 60 and 20 per cent off list  
Carriage bolts, 1/2 x 6 in.:  
Smaller and shorter, rolled threads. 60 and 20 per cent off list  
Carriage bolts, cut threads, all sizes. 60 and 20 per cent off list  
Lag bolts ..... 65 and 20 per cent off list  
Plow bolts, Nos. 1, 2 and 3 heads. 50 and 10 per cent off list  
Other style heads ..... 20 per cent extra  
Machine bolts, c.p.c. and t. nuts, 1/2 x 4 in.,  
50, 10 and 10 per cent off list  
Larger and longer sizes. 50, 10 and 10 per cent off list  
Hot pressed squares or hex. nuts, blank. 5c. off list  
Hot pressed nuts, tapped. 5c. off list  
C.p.c. and t. square or hex. nuts, blank. 4.50c.  
C.p.c. and t. square or hex. nuts, tapped. 4.50c.  
Semi-finished hex. nuts:  
1/2 in. and smaller, U. S. S. .... 80, 10 and 5 per cent off list  
1/2 in. and larger, U. S. S. .... 75 and 10 per cent off list  
Small sizes, S. A. E. .... 80, 10 and 5 per cent off list  
S. A. E. 1/2 in. and larger. .... 75, 10 and 5 per cent off list  
Stove bolts in packages. .... 80, 10 and 5 per cent off list  
Stove bolts in bulk. .... 80, 10, 5 and 2 1/2 per cent off list  
Tire bolts ..... 60 and 10 per cent off list  
Bolt ends with hot pressed nuts. .... 60 and 5 per cent off list  
Bolt ends with cold pressed nuts. .... 50 and 5 per cent off list  
Turnbuckles, with ends, 1/2 in. and smaller,  
55 and 5 per cent off list  
Turnbuckles, without ends, 1/2 in. and smaller,  
70 and 10 per cent off list  
Washers ..... 5.75c. to 6.00c.  
Lock washers ..... 80 per cent off list

## Semi-Finished Castellated and Slotted Nuts

(To jobbers and consumers in large quantities f.o.b. Pittsburgh.)

Per 1000			Per 1000		
1/4-in.	S. A. E.	U. S. S.	1/4-in.	S. A. E.	U. S. S.
4.25	4.25		13.25	13.50	
4.90	4.90		16.25	16.50	
5.90	5.25		22.50	23.00	
7.50	8.50		34.00	34.00	
9.75	10.00		53.00	55.00	

Larger sizes—Prices on application.

## Cap and Set Screws

Milled hex. head cap screws. .... 75, 10 and 5 per cent off list  
Milled standard set screws, case hardened,  
75, 10 and 5 per cent off list  
Milled headless set screws, cut thread,  
75, 10 and 5 per cent off list  
Upset hex. head cap screws, U. S. S. thread,  
80, 10 and 10 per cent off list  
Upset hex. head cap screws, S. A. E. thread,  
80, 10 and 10 per cent off list  
Milled studs ..... 65 and 10 per cent off list

## Rivets

Large structural and ship rivets, base, per 100 lb. .... \$2.60 to \$2.75  
Small rivets ..... 70 and 10 per cent off list

## Track Equipment

Spikes, 3/4 in. and larger, base, per 100 lb. .... \$2.90 to \$3.00  
Spikes, 1/2 in. and smaller, base, per 100 lb. .... 3.25 to 3.40  
Spikes, boat and barge, base, per 100 lb. .... 3.25 to 3.40  
Track bolts, all sizes, base, per 100 lb. .... 3.75 to 4.25  
Tie plates, per 100 lb. .... 2.50 to 2.55  
Angle bars, base, per 100 lb. .... 2.75

## Welded Pipe

### Butt Weld

Steel		Iron	
Inches	Black	Inches	Black
1/2	45	1/2 to 3/4	+11
3/4	51	3/4	22
1	56	1	28
1 1/4	60	1 to 1 1/4	30
1 1/2	62		13

### Lap Weld

Steel		Iron	
Inches	Black	Inches	Black
2	55	2	23
2 1/2 to 6	59	2 1/2	26
7 and 8	56	3 to 6	28
9 and 10	54	7 to 12	26
11 and 12	53		11

### Butt Weld, extra strong, plain ends

Steel		Iron	
Inches	Black	Inches	Black
1/2	41	1/2 to 3/4	61
3/4 to 1	47	3/4 to 1	+19
1 1/4	53	1 1/4	21
1 1/2	58	1 1/2	28
1 to 1 1/2	60	1 to 1 1/2	30

### Lap Weld, extra strong, plain ends

Steel		Iron	
Inches	Black	Inches	Black
2	53	2	23
2 1/2 to 4	57	2 1/2 to 4	29
4 1/2 to 6	56	4 1/2 to 6	28
7 to 8	52	7 to 8	21
9 and 10	45	9 to 12	16
11 and 12	44		2

To the large jobbing trade the above discounts are increased by one point, with supplementary discount of 5 per cent on black and 1 1/2 points, with a supplementary discount of 5 per cent on galvanized.

## Boiler Tubes

Lap Welded Steel		Charcoal Iron	
Inches	Black	Inches	Black
2 to 2 1/4 in.	27	1 1/2 in.	+18
2 1/4 to 2 3/4 in.	37	1 3/4 to 1 1/2 in.	+8
3 in.	40	2 to 2 1/4 in.	—2
3 1/4 to 3 3/4 in.	42 1/2	2 1/4 to 3 in.	—7
4 to 13 in.	46	3 1/4 to 4 1/2 in.	—9

## Standard Commercial Seamless Boiler Tubes

Cold Drawn		Hot Rolled	
Inches	Black	Inches	Black
1 in.	55	3 and 3 1/4 in.	36
1 1/4 and 1 1/2 in.	47	3 1/2 and 3 3/4 in.	37
1 3/4 in.	21	4 in.	41
2 and 2 1/4 in.	22	4 1/2 in. and 5 in.	33
2 1/2 and 2 3/4 in.	32		

Less carloads, 4 points less. Add \$8 per net ton for more than four gages heavier than standard. No extra for lengths up to and including 24 ft. Sizes smaller than 1 in. and lighter than standard gage to be held at mechanical tube list and discount. Intermediate sizes and gages not listed take price of next larger outside diameter and heavier gage.

## Seamless Mechanical Tubing

Carbon under 0.30, base. .... 85 per cent off list  
Carbon 0.30 to 0.40, base. .... 83 per cent off list  
Plus usual differentials and extras for cutting. Warehouse discounts range higher.

## Seamless Locomotive and Superheater Tubes

Cents per Ft.		Cents per Ft.	
Inches	Black	Inches	Black
2-in. O.D. 12 gage	15	2 1/4-in. O.D. 10 gage	20
2-in. O.D. 11 gage	16	3-in. O.D. 7 gage	35
2-in. O.D. 10 gage	17	1 1/4-in. O.D. 9 gage	15
2 1/4-in. O.D. 12 gage	17	5 1/2-in. O.D. 9 gage	55
2 1/4-in. O.D. 11 gage	18	5 1/2-in. O.D. 9 gage	57

## Tin Plate

Standard cokes, per base box ..... \$5.50

## Terne Plate

(Per Package, 20 x 28 in.)

8-lb. coating, 100 lb.		20-lb. coating I. C.	
base		base	
11.00		14.90	
8-lb. coating I. C.	11.30	25-lb. coating I. C.	16.20
12-lb. coating I. C.	12.70	30-lb. coating I. C.	17.35
15-lb. coating I. C.	13.95	35-lb. coating I. C.	18.35
		40-lb. coating I. C.	19.35

## Sheets

### Blue Annealed

Nos. 9 and 10 (base), per lb. .... 2.75c. to 2.80c.

### Box Annealed, One Pass Cold Rolled

No. 28 (base), per lb. .... 3.50c. to 3.65c.

### Automobile Sheets

Regular auto body sheets, base (22 gage), per lb., 5.10c.

### Galvanized

No. 28 (base), per lb. .... 4.75c. to 4.95c.

### Long Ternes

No. 28 gage (base), 8-lb. coating, per lb. .... 5.30c.

### Tin-Mill Black Plate

No. 28 (base), per lb. .... 3.75c. to 3.85c.



# Prices of Raw Materials, Semi-Finished and Finished Products

## Ores

### Lake Superior Ores, Delivered Lower Lake Ports

Old range Bessemer, 55 per cent iron.....	\$5.65
Old range non-Bessemer, 51½ per cent iron.....	4.90
Mesabi Bessemer, 55 per cent iron.....	5.40
Mesabi non-Bessemer, 51½ per cent iron.....	4.75

### Foreign Ore, per Unit, c.i.f. Philadelphia or Baltimore

Iron ore, low phos., copper free, 55 to 58 per cent iron in dry Spanish or Algerian.....	9.75c.
Iron ore, Swedish, average 66 per cent iron.....	9.50c.
Manganese ore, washed, 51 per cent manganese, from the Caucasus, nominal.....	45c.
Manganese ore, ordinary, 48 per cent manganese, from the Caucasus.....	42c.
Manganese ore, Brazilian or Indian, nominal.....	42c.
Tungsten ore, per unit, in 60 per cent concentrates.....	\$3.75 to \$10.00
Chrome ore, basic, 48 per cent Cr <sub>2</sub> O <sub>3</sub> , crude, per ton, c.i.f. Atlantic seaboard.....	19.00 to 22.00
Molybdenum ore, 85 per cent concentrates, per lb. of MoS <sub>3</sub> , New York.....	75c. to 85c.

## Ferroalloys

Ferromanganese, domestic, 80 per cent, furnace, or seaboard, per ton.....	\$107.50
Ferromanganese, British, 80 per cent f.o.b. Atlantic port, duty paid.....	107.50
Ferrosilicon, 50 per cent, delivered.....	75.00
Ferrosilicon, 75 per cent.....	140.00
Ferrotungsten, per lb. contained metal.....	90c. to 93c.
Ferrochromium, 4 to 6 per cent carbon, 60 to 70 per cent Cr. per lb. contained Cr. delivered.....	10.75c.
Ferrochromium, 6 to 7 per cent carbon, 60 to 70 per cent Cr., per lb.....	10.50c.
Ferrovandium, per lb. contained vanadium.....	\$3.50 to \$4.00
Ferrocobaltititanium, 15 to 18 per cent, per net ton.....	200.00

## Spiegeleisen, Bessemer Ferrosilicon and Silvery Iron

(Per gross ton furnace unless otherwise stated)

Spiegeleisen, domestic, 19 to 21 per cent.....	\$35.00 to \$37.00
Spiegeleisen, domestic, 16 to 19 per cent.....	34.00 to 36.00
Ferrosilicon, Bessemer, 10 per cent, \$39.50; 11 per cent, \$42, 12 per cent, \$43.50; 14 to 16 per cent (electric furnace), \$40.00.	
Silvery iron, 5 per cent, \$27.00; 6 per cent, \$28.00; 7 per cent, \$29.00; 8 per cent, \$30.50; 9 per cent, \$32.50; 10 per cent, \$34.50; 11 per cent, \$37.00; 12 per cent, \$39.50.	

## Fluxes and Refractories

Fluorspar, 80 per cent and over calcium fluoride, not over 5 per cent silica, per net ton f.o.b. Illinois and Kentucky mines.....	\$20.00 to \$22.00
Fluorspar, 85 per cent and over calcium fluoride, not over 5 per cent silica, per net ton f.o.b. Illinois and Kentucky mines.....	22.00 to 23.50
Per 1000 f.o.b. works:	
Fire Clay:	
Pennsylvania.....	High Duty \$40.00 to \$45.00 Moderate Duty \$37.00 to \$40.00
Maryland.....	45.00 to 47.00 40.00 to 42.00
Ohio.....	40.00 to 43.00 37.00 to 39.00
Kentucky.....	42.00 to 43.00 37.00 to 39.00
Illinois.....	37.00 to 42.00
Missouri.....	42.00 to 45.00 35.00 to 40.00
Ground fire clay, per net ton.....	6.00 to 7.00
Silica Brick:	
Pennsylvania.....	38.00
Chicago.....	47.00
Birmingham.....	50.00
Ground silica clay, per net ton.....	7.50 to 8.00
Magnesite Brick:	
Standard size, per net ton (f.o.b. Baltimore and Chester, Pa.).....	65.00
Grain magnesite, per net ton (f.o.b. Baltimore and Chester, Pa.).....	40.00
Chrome Brick:	
Standard size, per net ton.....	47.00

## Semi-Finished Steel, F.O.B. Pittsburgh or Youngstown, per gross ton

Rolling billets, 4-in. and over.....	\$38.00
Rolling billets, 2-in. and under.....	33.00
Forging billets, ordinary carbons.....	43.00
Sheet bars, Bessemer.....	40.00
Sheet bars, open-hearth.....	40.00
Slabs.....	38.00
Wire rods, common soft, base, No. 5 to ¼-in.....	\$48.00
Wire rods, common soft, coarser than ¼-in.....	\$2.50 over base
Wire rods, screw stock.....	\$5.00 per ton over base
Wire rods, carbon, 0.20 to 0.40.....	3.00 per ton over base
Wire rods, carbon 0.41 to 0.55.....	5.00 per ton over base
Wire rods, carbon 0.56 to 0.75.....	7.50 per ton over base
Wire rods, carbon over 0.75.....	10.00 per ton over base
Wire rods, acid.....	15.00 per ton over base
Skelp, grooved, per lb.....	2.20c. to 2.25c.
Skelp, sheared, per lb.....	2.20c. to 2.25c.
Skelp, universal, per lb.....	2.20c. to 2.25c.

## Finished Iron and Steel, F.O.B. Mill

Rails, heavy, per gross ton.....	\$43.00
Rails, light, new steel, base, lb.....	1.90c. to 2.00c.
Rails, light, rail steel, base, per lb.....	1.75c. to 1.80c.
Bars, common iron, base, per lb., Chicago mill.....	2.30c.
Bars, common iron, Pittsburgh mill.....	2.40c.
Bars, rail steel reinforcing, base, per lb.....	2.10c. to 2.15c.
Rail steel bars, base, per lb., Chicago mill.....	2.15c.
Cold-finished steel bars, base, Chicago, per lb.....	2.90c.
Ground shafting, base, per lb.....	3.40c.
Cut nails, base, per keg.....	\$3.00

## Alloy Steel

S. A. E. Series Numbers	Bars 100 lb.
2100* (¼% Nickel, 10 to 20 per cent Carbon)....	\$3.50
2300 (¾% Nickel).....	5.00
2500 (5% Nickel).....	\$6.50 to 7.00
3100 (Nickel Chromium).....	4.00
3200 (Nickel Chromium).....	5.75 to 6.00
3300 (Nickel Chromium).....	8.00 to 8.25
3400 (Nickel Chromium).....	7.00 to 7.25
5100 (Chromium Steel).....	3.75
5200* (Chromium Steel).....	7.50 to 8.00
6100 (Chromium Vanadium bars).....	4.75 to 5.00
6100 (Chromium Vanadium spring steel).....	4.50 to 4.75
9250 (Silicon Manganese spring steel).....	3.75 to 4.00
Nickel Chrome Vanadium (0.60 Nickel, 0.50 Chromium, 0.15 Vanadium).....	4.75
Chromium Molybdenum bars (0.30—1.10 Chromium, 0.25—0.40 Molybdenum).....	4.50 to 4.75
Chromium Molybdenum bars (0.50—0.70 Chromium, 0.15—0.25 Molybdenum).....	4.25
Chromium Molybdenum spring steel (1—1.25 Chromium, 0.30—0.50 Molybdenum).....	4.75 to 5.00

Above prices are for hot-rolled alloy steel bars, forging quality, per 100 lb. f.o.b. Pittsburgh. Billets 4 x 4 in. and larger are \$10 per gross ton less than net ton prices for bars of same analysis. On smaller than 4 x 4-in. billets the net ton bar price applies.

\*Not S.A.E. specifications, but numbered by manufacturers to conform to S.A.E. system.

## Freight Rates

All rail freight rates from Pittsburgh on finished iron and steel products, carload lots, 36,000 lb. minimum carload, per 100 lb.:

Philadelphia, domestic.....	\$0.32	Buffalo.....	\$0.265	St. Louis.....	\$0.43	*Pacific Coast.....	\$1.15
Philadelphia, export.....	0.235	Cleveland.....	0.215	Kansas City.....	0.735	*Pac. Coast, ship plates.....	1.20
Baltimore, domestic.....	0.31	Cleveland, Youngstown.....		Kansas City (pipe).....	0.705	Birmingham.....	0.58
Baltimore, export.....	0.225	Comb.....	0.19	St. Paul.....	0.60	Memphis.....	0.56
New York, domestic.....	0.34	Detroit.....	0.29	Omaha.....	0.735	Jacksonville, all rail.....	0.70
New York, export.....	0.255	Cincinnati.....	0.29	Omaha.....	0.705	Jacksonville, rail and water.....	0.415
Boston, domestic.....	0.365	Indianapolis.....	0.31	*Denver.....	1.15	New Orleans.....	0.67
Boston, export.....	0.255	Chicago.....	0.34	†Denver (pipe).....	1.17		

\*Applies minimum carload 80,000 lb. †Minimum loading 46,000 lb.

Rates from Atlantic Coast ports (i.e., New York, Philadelphia and Baltimore) to Pacific Coast ports of call on most steamship lines, via the Panama Canal, are as follows: Pig iron, 35c.; ship plates, 40c.; ingots and muck bars, structural steel, common wire products, including cut or wire nails, spikes, and wire hoops, 40c.; sheets and tin plates, 40c.; sheets No. 12 gage and lighter, 50c.; rods, 40c.; wire rope cables and strands, 45c.; wire fencing, netting and stretcher, 40c.; pipes not over 12 in. in diameter, 55c.; over 12 in. in diameter, 2½c. per in. or fraction thereof additional. All rates per 100 lb. in carload lots, minimum 36,000 lb.

## FABRICATED STEEL BUSINESS

### Fair Volume of Bookings and Considerable Tank Work in Prospect

The week's bookings in structural steel showed a total, in the larger size projects, of 20,000 tons, while no less than 55,000 tons were put under inquiry, of which one-third was for tank work for oil companies. Railroad work figured rather largely in the developments. Awards include:

Transit Commission, State of New York, inspection shed for the Interborough Rapid Transit Co., 700 tons, to Levering & Garrigues Co.

Lasner loft building, West Thirty-ninth Street, 500 tons, to Paterson Bridge Co.

Rensselaer Polytechnic Institute, Troy, N. Y. two buildings, 200 tons, to Palmer Structural Steel Co.

Standard Oil Co., office building, 26 Broadway, New York, sixth operation, 450 tons, to American Bridge Co.

Interstate Park, Bear Mountain, bridge over West Shore Railroad tracks, 200 tons, to American Bridge Co.

Loft building, 115-117 West Forty-fifth Street, New York, 650 tons, to Hay Foundry & Iron Works.

Pennsylvania Railroad, bridges, 500 tons, to Fort Pitt Bridge Works; 100 tons, to McClintic-Marshall Co.; 100 tons, to Bethlehem Steel Co.

Victor Talking Machine Co., Camden, N. J., building, 100 tons, to Bethlehem Steel Co.

Transit Commission, State of New York, elevated railroad approach on Westchester Avenue, New York, 900 tons, to McClintic-Marshall Co.

Quincy, Mass., highway bridge, 200 tons, to Boston Bridge Works.

Public Service Corporation, Newark, N. J., extension to terminal, 300 tons, to Hay Foundry & Iron Works.

County Hospital, Overbrook, N. J., 350 tons, to McClintic-Marshall Co.

New York Central Railroad, bridges totaling about 1400 tons, of which two bridges totaling 875 tons have been awarded to the Shoemaker Bridge Co.; two of 170 tons to Bethlehem Steel Co., and the remainder, small jobs, have been distributed among several bidders.

Apartment building, West Seventy-ninth Street, New York, 700 tons, to A. E. Norton, Inc.

High school, Linden, N. J., 400 tons, to Oltmer Iron Works, Jersey City, N. J.

Colonial Steel Co., Colona, Pa., gas producer house, 200 tons, to Jones & Laughlin Steel Corporation.

Butler Savings & Trust Co., Butler, Pa., bank building, 300 tons, to Jones & Laughlin Steel Corporation.

Mission Beach bath house, San Diego, Cal., 200 tons, to Virginia Bridge & Iron Co.

Chicago, North Shore & Northern Railroad, Niles Center extension, Evanston, Ill., 1710 tons, to Hansell-Elcock Co.

Commercial National Bank building, Peoria, Ill., 800 tons, to A. Lucas & Sons, Peoria.

Mishawaka Rubber & Woolen Mfg. Co., factory, Mishawaka, Ind., 1054 tons, to Kenwood Bridge Co.

Becklenberg Theater, Chicago, 434 tons, to Nechin Steel Construction Co.

Harrisburg, Ore., highway bridge over Willamette River, 420 tons, to Illinois Steel Bridge Co.

Nugent Store, St. Louis, 1000 tons, to American Bridge Co.

Western Catholic Union building, Quincy, Ill., 594 tons, to Michelmann Steel Construction Co., sublet to Mississippi Valley Structural Steel Company.

Yellowstone Park & Transportation Co. building, Livingston, Mont., 350 tons, to American Bridge Co.

Link-Belt Co. building, Indianapolis, 200 tons, to Insley Mfg. Co.

H. M. Byllesby & Co., Chicago, power plant, North Bend, Ore., 1000 tons, to Minneapolis Steel & Machinery Co.

Ford Motor Co., saw mill, Iron Mountain, Mich., 400 tons, to Worden-Allen Co.

Humble Oil Co., 5 oil storage tanks for Texas location, 1000 tons, to Kansas City Structural Steel Co.

Dixie Oil Co., 5 oil storage tanks for Texas location, 1000 tons, to Mount Cooper Boiler & Iron Co.

South Denver high school, Denver, Colo., 750 tons, to Western independent fabricator.

D. M. Ferry & Co., Detroit, warehouse, 375 tons, to American Bridge Co.

#### Structural Projects Pending

Inquiries for fabricated steel work include the following:

Municipal building, Brooklyn, 7000 tons, bids closing June 14; reported in issue of May 22 as 4000 tons.

Catholic high school, Eastern Parkway, Brooklyn, 1500 tons.

Parochial school, East 100th Street, New York, 250 tons.

Edison Electric Illuminating Co., Boston, 350 tons.

Southern Railway, bridge at Burnside, Ky., 5000 tons.

City of New York, Public school No. 73, Amsterdam Avenue and 165th Street, 1000 tons; school No. 19, Katonah Avenue and 237th Street, 550 tons, and Teachers' Training College, 135th Street, 3000 tons.

Tishman loft buildings, one at Lexington Avenue and Forty-third Street, 1200 tons, and one on Thirty-fourth Street, 3000 tons.

Delaware, Lackawanna & Western Railroad, bridges, 300 tons.

Big Four Railroad, 600 tons for bridges, bids close June 20.

First National Bank Building, Tulsa, Okla., 600 tons.

Santa Fe system, miscellaneous bridge work, 3000 tons.

Long Beach, Cal., theater, 600 tons.

Marland Refining Co., 20 to 40 tanks, 6000 to 12,000 tons.

Humble Oil Co., tanks in Texas, 2500 tons.

Humphrey Oil Co., tanks in Texas, 2000 tons.

Perry Oil Co., tanks, 1200 tons.

Simms Petroleum Co., tanks, 750 tons.

Gypsy Oil Co., tanks, 500 tons.

Texas Co., service racks, 750 tons.

Illinois Power & Light Co., Des Moines, Iowa, power plant, 1700 tons.

Michigan Central Railroad, Detroit, Fort Street bridge, 850 tons.

Sawyer Amusement Co., theater, store and apartment building, Sawyer and Milwaukee Avenues, Chicago, 1000 tons, Fridstein & Co., engineers.

Philadelphia subways, 9300 tons, bids closing July 15; this is for the first section of a program which ultimately will call for 50,000 tons or more of steel.

Continental Gin Co., Birmingham, 650 tons; new bids being received.

### Railroad Equipment Buying

The Missouri Pacific has revived an inquiry for 1000 automobile and 1000 refrigerator cars and the Chesapeake & Ohio placed 100 caboose cars with the Standard Steel Car Co. Otherwise developments were of no special importance.

Freight cars in need of repair on May 15 totaled 182,144, or 8 per cent of the number on line, according to the car service division of the American Railway Association. This was an increase of 2869 over the number reported on May 1.

Unfilled orders for locomotives called for 643 on May 31, according to the Department of Commerce, 3 more than on April 30, and the most since Nov. 30, 1923. The returns indicate domestic orders for 747 locomotives in the first five months of this year, and foreign orders for 75 locomotives. Shipments amounted to 523 and 43 respectively. In the first five months of 1923, shipments on domestic orders totaled 1111 and on foreign orders 62, with unfilled orders on May 31, 1923, of 2045 and 105 respectively.

### Valley Mill Operations

YOUNGSTOWN, June 10.—The Sharon Steel Hoop Co., Sharon, Pa., is maintaining its strip mill department at a rate near normal, while the Trumbull company is operating its three strip mills at 60 per cent. Skelp mill production is wholly suspended, but tube mill output continues unchanged, with 10 of 17 mills rolling, six by the Sheet & Tube company and the rest by the Republic company.

Independent bar mill operations embrace three light bar mills of the Republic company and the 9-in. mill of the Sheet & Tube company. The Republic company this week is operating its plate mill at the Lansingville plant, but the 84-in. plate mill at the Brier Hill works of the Sheet & Tube company, heretofore maintaining consistent production, has been withdrawn.

The A. M. Byers Co. continues to operate 88 puddle mills at its Girard property.

The Sheet & Tube Company estimates its average production in the Youngstown district at 35 per cent; the Republic Iron & Steel Company, 40 per cent; Trumbull Steel Co. at 50 per cent; Sharon Steel Hoop Co., about 85 per cent.



## NON-FERROUS METALS

### The Week's Prices

Cents per Pound for Early Delivery

	Copper, New York		Straits Tin (Spot)	Lead		Zinc	
	Lake	Electro- lytic*		New York	St. Louis	New York	St. Louis
June 4.....	12.87½	12.50	41.12½	7.05	6.95	6.12½	5.77½
5.....	12.87½	12.50	42.25	7.10	6.95	6.20	5.85
6.....	12.87½	12.50	42.00	7.10	6.95	6.17½	5.82½
7.....	12.87½	12.50	.....	7.12½	6.95	6.17½	5.82½
9.....	12.87½	12.50	42.00	7.12½	6.95	6.17½	5.82½
10.....	12.87½	12.50	42.00	7.12½	6.95	6.17½	5.82½

\*Refinery quotation; delivered price ¼c. higher.

### New York

NEW YORK, June 10.

Dullness pervades all the markets, but prices are fairly firm. Light demand at firm prices still characterizes the copper market. Tin prices are a little higher but buying is not heavy. A better demand for lead has lifted quotations moderately. Very little change is noted in the zinc market.

**Copper.**—The encouraging feature of the copper market is the fact that prices remain fairly firm in the face of only moderate buying. There has been very little change in the past week. Domestic consumers have done some buying and there have been some sales for export but, as might be expected under the present conditions of business in general, copper users are only buying what they need. Prices for electrolytic hold fairly firm and range between 12.75c. and 12.87½c., delivered, with enough metal available at the lower price to establish the market. Some producers report fairly good sales in the Middle West at as high as 13c. and their reports are to the effect that some brass and copper wire companies are operating at 70 to 75 per cent of capacity. Statistics for May are not as favorable as had been expected, showing only a small reduction in stocks and an increase in production of about 6,000,000 lb., as compared with April, whereas a decrease was expected. Lake copper is quoted at 12.87½c. to 13c., delivered.

**Tin.**—The market is exceedingly quiet with consumers buying almost no tin, largely because their present stocks are adequate. The dullness is likely to continue into the summer, according to the best opinion, due largely to the falling off in the production of tin plate, of automobiles and of other products into which tin enters. Total sales for the week have been around 500 tons and there have been no features of interest. Late last week there was a better tone in the London market, but on this side pessimism ruled. On Friday the London market was up and the New York market was down, and yesterday, with the London market closed because of the Whitsuntide holidays, there was practically no business here. Today the market has also been inactive, with spot Straits quoted at 42c., New York. London quotations today were about £7 per ton higher than a week ago, with spot standard quoted at £216 5s., future standard at £216 5s. and spot Straits at £219 15s. Arrivals thus far this month have been 1440 tons, with 5263 tons reported afloat. Imports for the first five months of this year have been 33,405 tons, of which 4845 tons came in during May.

**Lead.**—A better tone characterizes the market and a fair volume of business is being booked, with consumers the principal buyers. The contract price of the leading interest is still 7c., New York, but the outside market has worked higher until today it is quoted at 7.12½c., New York, or 6.95c., St. Louis.

**Zinc.**—The general situation has changed but little. Demand continues spasmodic and prices are still considerably below cost production. Sales of a few hundred tons have been made to two or three galvanizers and quotations range between 5.80c. to 5.85c., St. Louis, and 6.15c. to 6.20c., New York, for prompt and June shipment, with a small premium for July and August.

**Nickel.**—Shot and ingot nickel are quoted unchanged at 27c. to 32c. per lb., with electrolytic nickel held at 30c. to 32c. by the leading producers. Shot and ingot nickel in the outside market are quoted at 28c. to 32c. per lb.

**Antimony.**—Wholesale lots of Chinese metal are quoted at 8.30c. to 8.40c., duty paid, New York, for prompt and early delivery.

**Aluminum.**—Virgin metal, 98 to 99 per cent pure, is quoted by importers at 26.50c. to 27c. per lb., duty paid, delivered.

**Old Metals.**—Business is sluggish in sympathy with new metals. Dealers' selling prices are as follows:

	Cents Per Lb.
Copper, heavy and crucible.....	12.25
Copper, heavy and wire.....	11.25
Copper, light and bottoms.....	10.25
Heavy machine composition.....	10.00
Brass, heavy.....	7.75
Brass, light.....	6.50
No. 1 red brass or composition turnings..	8.50
No. 1 yellow rod brass turnings.....	7.25
Lead, heavy.....	6.00
Lead, tea.....	5.00
Zinc.....	4.25
Cast aluminum.....	16.00
Sheet aluminum.....	16.50

### Chicago

JUNE 10.—Tin, lead and zinc have advanced, while the other metals remain unchanged. There has been a little better feeling in the market during the week, but business remains light, except for a few fair-sized sales of lead. Old metal prices are unchanged. We quote in carload lots: Lake copper, 13.25c.; tin, 43.50c.; lead, 6.90c.; spelter, 5.85c.; antimony, 10.50c., in less than carload lots. On old metals we quote copper wire, crucible shapes and copper clips, 10.25c.; copper bottoms, 8.75c.; red brass, 7.50c.; yellow brass, 6.25c.; lead pipe, 5.75c.; zinc, 3.75c.; pewter, No. 1, 20c.; tin foil, 26c.; block tin, 30c.; all buying prices for less than carload lots.

### Lead in 1923

Final returns place the total output of refined primary lead in 1923 at 618,322 net tons, according to C. E. Siebenthal and A. Stoll of the U. S. Geological Survey. The corresponding output of refined primary lead in 1922 and 1921 was 532,662 tons and 448,589 tons, respectively.

The apparent consumption of lead in the United States in 1923, according to the same data, was 574,043 tons, compared with 492,705 tons in 1922 and 444,872 tons in 1921.

Total exports of lead in 1923 were 62,761 tons, contrasting with 43,855 tons in 1922 and with 35,993 tons in 1921.

### Sheet Metal Ware Association Meets

FRENCH LICK, IND., June 10.—The Sheet Metal Ware Association will hold a meeting here tomorrow. It will be addressed by Ray M. Hudson, assistant chief of the division of simplified practice, Department of Commerce, who plans to tell how in the first ten industries aided by the division the reduction of excess variety had averaged 86½ per cent, yet the industries are doing more business than ever before on the 14½ per cent of items retained. Of interest to the sheet metal ware industry is the recent survey by the National Association of Sheet and Tin Plate Manufacturers, which revealed 27 gages and 150 grades of material, with hundreds of sizes of sheet steel. One result of this survey, he predicted, will be a simplification. "We of the division of simplified practice," he said, "are not an inquisitorial or regulatory body. We can cooperate with you only at your request, but if you believe that you are troubled with an excess of variety in your industry, we shall be glad to assist you to the fullest extent in solving your problem."

## PERSONAL

William H. Woodin, president American Car & Foundry Co., has resigned as a director of the Westinghouse Electric & Mfg. Co. and the American Beet Sugar Co. According to reports he is expected also to resign as director of the American Locomotive Co., Canadian Car & Foundry Co., General Motors Corporation, Montreal Locomotive Works and other companies. Mr. Woodin is abroad but is expected back in New York within a few days. Much of his time in recent years has been spent in gratuitous public service.

Frederick L. Sivy, president Sivy Steel Casting Co., Milwaukee, has returned from a four-months' journey in foreign lands. His itinerary included the principal Mediterranean countries.

George A. Morison, secretary Bucyrus Co., South Milwaukee, Wis., was elected president of the Associated Harvard Clubs of the World at the annual convention held in Detroit on June 4, 5 and 6. Mackey Wells, president Kerner Incinerator Co., Milwaukee, was elected treasurer.

F. N. English, who has been Pittsburgh district sales manager of the Reading Iron Co., since it established a Pittsburgh branch in 1919, has been promoted to assistant manager of sales with headquarters at the general office at Reading. He succeeds A. F. McClinck, who resigned recently to become special agent in Western and Southwestern oil fields of the Pittsburgh Crucible Steel Co., Pittsburgh. Before going with the Reading Iron Co., Mr. English for several years was identified with the A. M. Byers Co. as Pittsburgh district manager of sales, and before that he was for 10 years in the sales department of the Stark Rolling Mill Co., Canton, Ohio, now the Stark division of the United Alloy Steel Corporation.

E. M. Roubieu, first vice-president Tropenas Company, engineers, 25 Broadway, New York, in charge of the Rio de Janeiro offices, is now on his way to the United States, after an absence of nearly four years. He will remain in this country about six weeks and then return to South America.

W. C. Reitz, secretary-treasurer Pittsburgh Steel Products Co., Pittsburgh, has been reappointed a member of the Pittsburgh Sinking Fund Commission.

E. S. Taylerson, who has been director of the research laboratory of the American Sheet & Tin Plate Co., Pittsburgh, has been named engineer of tests of the company, in which capacity he assumes most of the duties of the late Daniel M. Buck, metallurgical engineer. Mr. Taylerson who was born and educated in England and also has a degree from the Carnegie Institute of Technology, has been associated with the company for about seven years.

J. C. Whetzel has been appointed manager of the research laboratory of the American Sheet & Tin Plate Co., Pittsburgh. He is a graduate of Washington and Lee University and also holds a degree from the Massachusetts Institute of Technology. He has been with the American Sheet & Tin Plate Co. since 1918.

H. D. Miles, Buffalo Foundry & Machine Co., Buffalo, represented the American Foundrymen's Association at the reception and enthusiastic welcome given to the Institute of British Foundrymen at its opening meeting in New Castle June 6. R. O. Patterson of Smith Patterson, Ltd., Blaydon-on-Tyne, was installed as president.

Harry G. Baldwin, assistant chief engineer New Departure Mfg. Co., New Britain, Conn., has been placed in charge of sales engineering in the engineering department.

Paul B. Morgan, president Morgan Construction Co., Worcester, Mass., has been made president of the Worcester Gas Light Co. He has been a director of the company for several years and is also a director of the Worcester Bank & Trust Co., Wickwire Spencer Steel Corporation, State Mutual Life Assurance Co.

and the Worcester Morris Plan Co., as well as president of the Heald Machine Co.

Harry G. Acres of Niagara Falls, Ont., chief hydraulic engineer of the Chippawa Hydro Canal for the past seven years, has been invited, with Sir Adam Beck and Chief Engineer F. A. Gaby, to meet the hydroelectric engineering experts of the world in London, England, next month. These three men, who have helped to make Ontario eminent in hydroelectric power facilities, will submit to the experts the benefit of Ontario's power experience. The meeting is held in conjunction with the Wembley Exhibition.

A. G. Oakley, formerly of the firm of Hilton-Pike-Oakley, Seattle, Wash., iron and steel commission merchants, has retired from the firm to become district sales manager for the Youngstown Sheet & Tube Co., Youngstown, Ohio, with offices in Room 250, Central Building, Seattle. Mr. Oakley succeeds George F. Thompson, who died May 14.

Walter F. Henly, for eight years New York representative of the Leland-Gifford Co., Worcester, Mass., manufacturer of drilling machines, has been appointed New York sales representative of the Hendey Machine Co., Torrington, Conn., succeeding Arthur H. Hall, who was recently made sales manager of the Hendey company.

Alexander P. Darragh has been appointed New York district sales manager by E. Arthur Tutein, Inc., Boston, New York and Philadelphia, whose New York office is located at 2 Rector Street. Mr. Darragh was ten years with the Carnegie Steel Co. and during the existence of the Consolidated Steel Corporation held an executive position with that company. E. Arthur Tutein, Inc., is agent in the New York and other territories for Thomas pig iron and will sell the output of the by-product coke ovens and blast furnace to be erected at Troy, N. Y., by the recently organized Troy Coke & Iron Co.

Herman Lemp, engineer in charge of the internal combustion engine engineering department of the General Electric Co. at Erie, has resigned to join the Erie Steam Shovel Co. This follows an association with the General Electric Company of 42 years. In joining the Erie company, he will assist in the design of new types of shovels, some of them using the internal combustion engine as a prime mover.

H. L. Schreck has resigned as general engineer for the Wheeling Steel Corporation, Wheeling, W. Va., and plans to engage in the practice of consulting and designing engineering. Before joining the Wheeling Steel Corporation about five years ago he had been for several years chief engineer for Mackintosh, Hemphill & Co. (now the Mackintosh-Hemphill Co.), Pittsburgh. His first connection with the Wheeling Steel Corporation was as chief engineer at its Portsmouth, Ohio, works. He became general engineer in 1920 and in that capacity had charge of the program of improvements which embraced a new rod and wire mill at Portsmouth and the modernization of LaBelle works at Steubenville, Ohio, involving the expenditure of several million dollars. Altogether, he has been engaged in steel plant and rolling mill engineering for nearly 30 years.

Andrew Glass, who resigned as vice-president in charge of operations of the Wheeling Steel Corporation, Wheeling, W. Va., about two years ago to engage in business in New York, has returned to Wheeling and will resume his old position with the company, June 15. William J. Stoop, who has been vice-president in charge of operations, was appointed to the vacancy created by the resignation of H. L. Schreck, general engineer.

C. W. Obert, recently secretary of the American Society of Heating and Ventilating Engineers, has been made manager of the heating department of the Lebanon Boiler Works, Lebanon, Pa., with headquarters at 39 Cortlandt Street, New York.

Homer Strong & Co., Inc., 301 State Street, Rochester, N. Y., is in the market for a 6000-lb. double-frame steam forging hammer, with distance between frames approximately 120 in.



## RUSTLESS IRON AND STEEL

### Stainless Iron Castings in Great Britain—Other Developments

BY A. C. BLACKALL\*

FOR some time past considerable controversy has been going on in the British trade journals concerning stainless steel and stainless or rustless iron, exactly the meaning of the term, and the real uses to which it may be advantageously put.

The following information gleaned from Thomas Firth & Sons, Ltd., Sheffield (the inventors of "rustless steel"), and Samuel Osborn & Co., Ltd., also of Sheffield, who are successfully producing rustless iron, is of considerable interest. Both of these firms have been carrying out considerable research programs in their laboratories and making investigations with a view toward future developments.

In reply to a question whether low-carbon stainless steel could be cold-worked and bent, say, to a sharp angle without the effect of the bending producing corrosion, Firth & Sons stated that, although able to give quantitative information concerning their own products, they could not answer for some of the material which is at present upon the market. Stainless steels made to carefully controlled analytical specifications have been thoroughly tested out, both in the laboratory and under service conditions. Their own low carbon stainless steel, they state, although softened or tempered to give the maximum ductility, was after this treatment just as rustless as stainless cutlery steel, provided the amount of cold-working had not been too excessive. Such mild stainless steel might also be cold-worked, for the purpose of producing a hook, or pressing a dish, and would require no further heat treat-

\*28 Howitt Road, Belsize Park, London, England.

ment, being simply polished to give a brilliant finish.

It is necessary that all articles made of any stainless steel should have a perfectly clean surface, that is to say, all scale or oxide must be removed, as otherwise such defects may form seats of corrosion.

With regard to the production of rustless iron, in which Osborn & Co. claim to have taken a lead, they state that this is a difficult metal to make in any form, and only firms with the most up-to-date and suitable plant, and the most highly skilled metallurgists, can succeed in producing it in such form that it will live up to its name.

#### "Rustless Iron" Castings

This firm has had much success in the production of bars, sheets, etc., and looks forward to a good trade in rustless iron castings. Rustless iron differs from stainless steel in that it requires no heat treatment to bring out its rustless properties. This treatment is the stumbling block which prevents a much larger use being made of rustless steel, and which practically prevents rustless steel castings being made with success. With rustless iron, all that is needed is a good polished surface, but Osborn & Co. claim not only to have succeeded in making rustless iron castings, but state that the castings they make are rustless in their cast state—a distinct advance on anything that has been done hitherto.

A director of this company, in an interview, said: "At present we are producing two types of rustless iron castings: one that is brittle, but in which we can obtain the necessary details such as moldings, figures, heads, angles, scrolls, etc., etc., and the other in which we cannot obtain the same details, but in which the castings are tough. We have already made many ornamental castings for stove grates, fireplaces, tennis-ball molds, and others for street car fittings, etc." This company maintains that rustless iron castings may be correctly described as a most interesting metallurgical development.

## GERMAN ELECTRIC PRODUCTION

### Increasing Use of Lignite, Burned Near Mines, to Make High-Voltage Current—Interconnection of Systems Contemplated

Interesting figures about the development of the German production of electricity were given at the recent meeting of the German lignite industry at Leipzig. In 1913 there were 1600 power stations in Germany, with a total production of 1,500,000 kw. All these works were situated in the centers of the districts they supplied. Conditions have greatly changed in every respect since then. The installed power had been doubled up to 1922 and the total energy produced had increased from 2200 to 7200 million kwhr.

A remarkable change has taken place also in the use of coal and lignite in the power stations. Coal has decreased from 63 per cent of the total (measured by production of electricity) to 48 per cent, while the use of lignite has increased from 23 to 41 per cent. This development is especially noteworthy in the Rhenish-Westphalian district where, during 1913, electrical energy at the public power stations was produced almost exclusively from coal, while in 1922 about 40 per cent was produced from the lignite of the mines near Köln. These mines are situated on the edge of the district they mainly supply. The same development is noticeable in the case of the power supply of Berlin and the province of Brandenburg. One-half of their requirements of electric energy is supplied now by the lignite power stations of Saxony. Waterpower is supplying about 9 per cent of the German production of electric power, while peat is negligible.

#### Conditions Favoring Lignite

Development in the production of electricity from lignite has been made possible by the increase in the output of lignite, and solves the problem of making the most economical use of raw lignite which, on account of its low heating capacity, would be unsalable at a distance from the mines, owing to the high freight

charges. Thus lignite has become an important factor in the economic life of Germany.

Production which during 1913 totalled 87,000,000 tons already had increased to 137,000,000 tons during 1922. Technical improvement in the transmission of energy has been of great importance in the development of the whole system. Since it has been found possible to transmit high-voltage energy, most power stations have been built close to the mines. Cost of transmitting is generally not dearer than the transport of coal, while, in the case of lignite, freight is even more expensive. Consequently there has been a large saving of coal and a considerable decrease in the railroad carriage of fuel.

#### Hydraulic Interconnection

The water-power stations in Bavaria, Thuringia and in the Harz Mountains are to be connected in the near future with the West and Central German steam power stations by a 200,000-volt line. The first step in this direction will be the connection of the Central German lignite stations with the Bavarian water-power stations by a 100,000-volt line. A connection between the Bavarian and the Württemberg lines between Mannheim and Stuttgart is in building and another line is contemplated between Württemberg and Baden. After the completion of the water-power stations on the Upper Rhine and in the Harz Mountains, several other lines will be laid which will form a 200,000-volt connecting link between West, Central and South Germany and form a complete unit of the water and steam power stations for the supply of electric energy.

The triangle of three German centers of electricity production, the Goldenbergwerk in the West, the Central German lignite district and the South German water-power stations, would be able to supply all parts of Germany except the far eastern and the northern provinces. In Central Germany, which is best supplied with electric energy, the linking up of the various stations has been brought to the greatest perfection and 98 stations with a production of 827,000,000 kwhr. are connected.

## OIL-BURNING DEVELOPMENTS

### Portable Equipment and Its Many Uses—Economy and Adaptability the Features

BY C. F. OLMSTEAD\*

**T**HERE are certain advantages of oil-burning equipment that are not comparable to any other. Torches are distinctly in a class by themselves. They offer no competition to other fuels with the possible exception of gas. We cannot conceive of a coal or coke burning torch. Every railroad, boiler, structural steel, machine and car shop, every garage, foundry, packing plant and factory, every contractor and steel fabricator can use portable oil-burning equipment. In all of these industries there is some operation or process where it is more economical to take the heat to the work rather than the usual reverse method of carrying the work to the heat.

Consider, for instance, its use in a modern foundry. Core patches are dried, molds skin dried, ladle linings dried and ladles heated, cupolas lighted, and castings pre-heated; all at a minimum of time, labor and expense. In the old days and at present in many foundries, it is customary to light the cupola by using from one-third to one-half cord of wood to ignite the coke bed. Wood is not only expensive to buy but also costly to handle. By properly laying the first layers of coke it can be quickly and uniformly lighted by the flame of a large torch—doing away entirely with wood and at an expense of only a few cents for oil.

In steel foundries ladles must not only have dry linings but, to obtain best results and reduce defective casting loss, must be heated. The common practice of drying linings is to build a wood fire in each ladle. Preparing kindling and building fires not only consumes considerable time but pieces of kindling are apt to damage the soft lining. Oil and gas fuel driers and heaters are subject to accurate control so that a slow fire can be started and the heat increased at will, to prevent checking of the lining from too rapid drying.

Preheating castings with oil saves time, expensive welding gases, and the dirt and inconvenience incident to the use of charcoal or coke.

#### Quick Repair Jobs

Steel members on steel underframe and all-steel cars are seldom broken by usage but frequently are sprung or bent. Formerly the method of repair was to cut the rivets holding the bent members, heat in an open forge fire and straighten, after which the member would be riveted back in place. A torch will heat this same piece in place and it can be straightened without cutting a single rivet. We know of an incident in which a steel car repair foreman said that he was able to complete a job in 40 min. with two men and a torch, that otherwise would have taken a crew two days.

Portable oil-burning equipment is a comparatively recent development, probably within the past 25 years, and that designed for fuel oils heavier than gasoline within a still more recent period, not over 20 years. It is only within the past few years, however, that there has been scientific investigation worthy of mention.

#### Principle of Operation

At first the blow torch or generating principle dominated. In this type the oil is forced from the tank by pressure of a hand pump, through a generating coil in the torch head, is heated and issues as a jet of gas into the nozzle forming the combustion chamber, where all of the air supporting combustion is induced. The high temperature required to gasify the oil seems to break it down and leave hard carbon deposits within the generating passages. In time this accumulation interferes with the operation of the torch and cleaning is necessary.

This type of torch does not have the adjustments of the other types and only clean kerosene or lighter oils

can be used for fuel. It does have the advantage, though, of being entirely self contained and can therefore be used any place. For this reason it has an unlimited field in plants not equipped with compressors. It is encouraging to know that recent investigation bids fair to eliminate entirely the troublesome carbon deposits.

There are certain characteristics in the operation of a well-designed pressure torch or burner which are hard to improve upon. For these, compressed air at a pressure of 80 or 100 lb. is used to force the oil to the burner and also to break it up into a fine mist. Free air is induced to complete the combustion. A torch of this type gives a continuous, dependable flame, little affected by its position or height above the fuel supply. There is a thorough atomization and mixture of oil and air in the nozzle, further increased by induced air. Combustion is complete and efficient.

#### Automatic Safety Control

Probably the greatest single improvement on this type of torch or burner in recent years has been the automatic shut-off valves. A flow of oil in excess of the normal capacity of the valve causes it to close and remain closed. This condition exists, for instance, when a pipe or hose line is cut or broken or a coupling fails, and in so doing prevents a dangerous spray of oil under pressure. These valves are standard on the best equipment and their use has averted many serious accidents.

This burner is so designed that a flow of compressed air through the nozzle of the burner creates a vacuum in its oil chamber and, by suction feed, draws the oil into this same air current to be atomized. This principle eliminates the pressure from the supply tank and connections, and fire hazard to employees and plant is nil.

The only limitation imposed on this burner is the height above the oil supply at which it will operate. The theoretical limit is the pressure head equivalent to a perfect vacuum. For kerosene this would be 40 ft., but the imperfect vacuum and friction losses in the equipment reduces this figure to approximately 15 ft. in operation. It is seldom, however, that this limitation is any handicap to the use of the burner, and least of all in portable equipment.

### Organizing for Trade Extension in Sheets

PITTSBURGH, June 10.—Organization of the trade extension committee of the sheet steel industry will be the principal business of the monthly meeting of the National Association of Sheet and Tin Plate Manufacturers which is being held today at the Maketewah Country Club, Cincinnati, as the guests of the Newport Rolling Mill Co., Newport, Ky.

Though June 2 was not pay day, 9177 employees at the Schenectady Works of the General Electric Co. were paid approximately \$130,000 on that day. This represented their return for the six months ended June 1, on savings which they had put to work by investing in the G. E. Employees Securities Corporation. This corporation was formed in 1923 by the General Electric Co. to encourage saving by its employees. Up to the present time there are in all 23,281 employees who have paid in full for a total of \$8,213,280 worth of bonds. Interest received by employees to date amounts to \$301,074.64.

Manufacturing connections are being sought by the Refrigeration Development Co., 14 North Tenth Street, Allentown, Pa., which will place contracts for refrigerating machines as soon as a good connection can be made. Operations will be handled by a company now under organization with \$1,000,000 capitalization. Orders will be placed for manufacturing in lots of 1000 and the company will maintain an assembling plant. M. F. Jurick, mechanical engineer, is one of the principals.

\*Assistant engineer, Mahr Mfg. Co., Minneapolis. Abstract of paper before American Oil Burner Manufacturers' Association.



## NEW TRADE PUBLICATIONS

**Machine Shop Tools.**—W. H. Nicholson & Co., Wilkes-barre, Pa. Bulletin No. 424 of eight pages describing and illustrating the company's expanding mandrels, which are designed to hold work with square as well as round holes. A new drill and reamer holder is also shown as well as several sizes of arbor presses.

**Machinists' Tools.**—L. S. Starrett Co., Athol, Mass. Comprehensive catalog designated as the No. 25, of more than 350 pages showing a wide line of tools, gages and other accessories. Among the items are steel and other rules; straight edges; steel tapes; combination squares; bevel protractors; combination sets; vernier calipers; dial indicators and gages; micrometer calipers; screw pitch, thread and thickness gages; clamps; calipers; dividers; drill and wire gages and numerous other items. There are 61 new tools listed.

**Cupola Charging Machines.**—Whiting Corporation, Harvey, Ill. Circular N-1387, a folder devoted to savings effected in a foundry using the company's charging machine.

**Automatic Lathes.**—Lodge & Shipley Machine Tool Co., Cincinnati. Booklet of 16 pages under the title of "200 Years—the Evolution of the Lathe," describing and illustrating earliest types of lathes and also lathes developed by the company since 1893 up to the present "Duomatic" lathe recently placed on the market.

**Stroh Process Steel Castings.**—Stroh Steel-Hardening Process Co., Pittsburgh. Booklet of 24 pages, 9 x 12 in., outlining the theory of the Stroh process and the application of Stroh steel castings. The process is a method for casting alloy steel with ordinary soft steel, the body being of any steel desired. The applications illustrated include blooming mill pinions, mine car wheels and gyratory crusher heads.

**Pipe Fittings.**—In a 36-page, two-color publication entitled "Westinghouse Fittings for Pipe Structures," the Westinghouse Electric & Mfg. Co. describes its line of interchangeable pipe fittings for structural work. The publication, which is known as Circular 1676, describes the fittings as applied to the erection of outdoor substations, switching equipment, switchboard frames, racks, railings, fences, etc. It contains an unusually large number of illustrations, supplemented by dimensional drawings.

**Steel Information Manuals.**—Joseph T. Ryerson & Son, Inc., Chicago. Bulletin, entitled "General Data," 128 pages, 4½ x 8½ in., comprising standard classifications of mill extras, standard list prices, weights per lineal foot of various steel commodities, weights per different kinds of sheets, etc., manufacturers' standard specifications for various steel products, and other data and tables of interest to steel buyers. Bulletin, entitled "Special Products," 64 pages 4½ x 8½ in., describing steel products classed as specialties not shown in the regular Ryerson Journal and Stock List, and giving more complete information regarding certain items already carried in the Journal and Stock List.

**Chain.**—Union Chain & Mfg. Co., Sandusky, Ohio. Catalog of 40 pages, the first since 1915, replete with information necessary to the buyer of elevating, conveying and power transmission machinery. Dimensions and prices per foot of various types of chains and steel belting are given and tables of size and price on sprocket wheels and teeth for the renewable tooth sprockets. Line drawings of elevators and conveyors are included as well as photographs.

**Hand Trucks.**—Stuebing Truck Co., Cincinnati. Catalog of the Stuebing system of load platforms and lift trucks. A method of calculating the type and size of truck needed for a particular kind of material is given. The company's eight types of platforms are illustrated and their applicability explained. Photographs of all necessary repair parts are numbered and priced for convenience in ordering.

**Heating.**—Buffalo Forge Co., 490 Broadway, Buffalo, N. Y. Bulletin analyzing situation in unit heater field and covering types of radiation to use under various conditions.

**Resistance Starters.**—Allen-Bradley Co., Milwaukee, Wis. Bulletins 600, 640, 720 and 740, each of four pages, illustrated. Bulletin 600 gives complete detail of alternating current resistance starters and Bulletin 640 covers Type H-1852 semi-automatic resistance starters.

Bulletin 720 is devoted to Type J-1552 across-the-line starting switch and Bulletin 740 gives details of Type J-3052 automatic resistance starter.

**Condulets for Concrete Work.**—Crouse-Hinds Co., Syracuse, N. Y. An illustrated folder, giving illustrations and detailed information regarding the company's condulets for concealing in concrete.

**Electric Motors.**—Chandeysson Electric Co., St. Louis. A series of bulletins, illustrated, giving information regarding electro-plating generators and motor generator sets, squirrel cage alternating current motors and direct current motors.

**Lubrication.**—McCord Radiator & Mfg. Co., Detroit. Two illustrated booklets, one entitled "The Economy of Better Lubrication" and the other, "The Dependable Operation of Steam Shovels, Cranes and Dredges." The former publication gives pictures and information regarding the McCord Class B Lubricator, adapted to small steam engines, oil and gasoline engines, air compressors, steam pumps and auxiliaries, and points out the economies of proper and efficient lubrication. The other booklet describes the part lubrication plays in the dependable operation of heavy machinery, such as steam shovels, cranes, dredges, hoisting engines, also coal and ore handling apparatus. Information regarding the McCord Class BA Force Feed Lubricator is given.

**Electric Motors.**—Ohio Electric & Controller Co., Cleveland. Ohio Motor bulletin No. 204 and Ohio Motor Application bulletin. The former gives descriptions of Ohio fractional size a. c. and d. c. motors and the latter illustrates numerous applications of these motors.

**Manganese Steel.**—Hadfield-Penfield Steel Co., Bucyrus, Ohio. A series of leaflets illustrating and describing the uses to which manganese steel may be put, among these being for frogs, switches, crossings and other railroad track work; chain and sprockets, elevator buckets, pins, links and parts; standard dippers for steam shovels and dredges; wearing parts for all makes of jaw crushers; revolving screens, flat screen plates, dry and wet pan tread plates, tube and ball mill, liners and screens, gears and pinions; for all makes of gyratory crushers.

**Cold Sawing Equipment.**—Earle Gear & Machine Co., Philadelphia. Booklet entitled, "Economy in Cold Sawing," containing a description, with illustrations, of the Lea-Simplex cold cutting-off-saws.

**Drilling and Tapping Machine.**—Barnes Drill Co., Rockford, Ill. A 6-page illustrated leaflet of the Barnes automatic self-oiling all-gear drill and tapper.

**Sand Blast Machinery.**—J. W. Paxson Co., Philadelphia. A complete, illustrated catalog of equipment used in sand blast work in the foundry. This is bulletin No. 43, superseding No. 23.

**Smithograms,** a paper intended for users of welding and cutting equipment, is being published monthly by the service department of Smiths Inventions, Inc., Minneapolis. The publication is made up of four pages, 8½ x 11 in.

## New Books Received

**Beiträge zur Geschichte der Technik und Industrie.** By Conrad Matschoss. Pages 150, 7½ x 10¼ in., illustrated. Published by V. D. I. Verlag, G.m.b. H., 7 Beuthstrasse, Berlin, S. W. 19, Germany. Price, 9 gold-marks.

**Inventor's Manual.** By George M. Hopkins. Pages 138, 5 x 7½ in. Published by Norman W. Henley Publishing Co., 2 West 45th Street, New York. Price, \$1.50.

**Handling Callers in the Business Office.** By Helen Hysell. Pages 106, 5 x 7¼ in. Published by the Purchasing Agent Co., Inc., 53 Park Place, New York. Price, \$1.50.

**Non-ferrous Metals.** By N. M. Penzer. Pages, viii + 264, 7½ x 10 in. Published by Ernest Benn, Ltd., 8 Bouverie Street, London, E. C. 4, England. Price, 21s.

**Ferrous Metals.** By M. S. Birkett. Pages, xiv + 165, 7½ x 10 in. Published by Ernest Benn, Ltd., 8 Bouverie Street, London, E. C. 4, England. Price, 21s.

**Fuel.** By G. W. Andrew. Pages, xvii + 208, 7½ x 10 in. Published by Ernest Benn, Ltd., 8 Bouverie Street, London, E. C. 4, England. Price, 21s.

## CONSERVATIVE POLICY

### Buyers at Seattle Place Orders for Nearby Needs Only—Building Active

SEATTLE, June 5.—Jobbers and consumers are not showing any inclination to buy beyond their actual nearby needs. The fact that prices have given way to some extent, together with the uncertain political outlook, is given as the reason why they are still pursuing a very conservative policy in placing orders. Stocks of steel in warehouses in Seattle, Portland and other coast cities are said to be down to a low point, but with the very prompt deliveries being made from Eastern mills by both rail and water, local distributors of steel say that if a sudden spurt in demand should come they believe they could get supplies from the East in ample time.

When any fair-sized job comes out prices, figured back to Eastern mill, are being badly cut. One case is that of a water line to be built by the city of Tacoma involving about 350 to 375 tons of copper bearing steel flanged plates. Bids on this work went in on last Saturday, May 31, and it is known that one Eastern mill made a price on the copper bearing plates of 2.85c., delivered Tacoma. This was an unusual case, as the ruling price here on tank quality plates, 1/4-in. and heavier, is 2.60c., Pittsburgh, and some local representatives of Eastern plate mills have strict instructions not to go below that figure under any circumstances. Like other finished steel products, the demand for plates is very quiet, and no large work is in sight.

The Pacific Coast Steel Co., which operates an open-hearth steel plant, sheet, bar and plate mills at Youngstown, a suburb of Seattle, rolling limited sizes of plates, is adding a new mill that will roll universal plates up

to 30 in. wide. This mill is expected to be ready for operation in the fall.

The sheet trade is quiet, but prices are fairly strong on the very small amount of business that is being placed. Local representatives of Eastern sheet mills are quoting on the basis of 2.80c. for blue annealed, 3.60c. for black and 4.80c. for galvanized, all these prices being f.o.b. mills, Pittsburgh freights to apply. A large part of the sheet trade on the coast is going to the Columbia Steel Corporation, which has sheet mills at Pittsburgh, a suburb of San Francisco.

The fruit and vegetable crops in Washington will be very late this year, as they will be in the Eastern States, and this is holding back specifications for tin plates for local consumers, such as the condensed milk industry, the berry and vegetable packers and the smaller tin plate users.

In almost every line of business except steel, Seattle and other coast cities, such as Tacoma and Portland, seem to be busy. More building is under way now in Seattle than ever before in its history. Within the past two weeks plans were completed, and the financing arranged for, for three large buildings to be erected here, the total cost approximating close to \$5,000,000. One of these is for the order of Elks, another for the order of Eagles and the third to be known as the Doctors and Dentists Building. In none of the buildings will any large quantities of structural shapes be used as all will be of the reinforced concrete construction type, but they will require large quantities of reinforcing steel.

Wages in the local building crafts are lower than in the East. Carpenters are usually paid \$8 per day, bricklayers and painters \$9 per day. There seems to be a plentiful supply of labor. Living costs are at least 20 per cent less in the Pacific Northwest than in most large Eastern cities.

### Revised Safety Code for Forging

The revised draft of the Safety Code for Forging formulated under the joint sponsorship of the National Safety Council and the American Drop Forging Institute has been published by the National Safety Council as it will be submitted for approval under the procedure of the American Engineering Standards Committee.

The code was developed by a committee representing 17 different groups interested in forging work—trade associations, engineering societies, Government departments and insurance companies, and is parallel to the Power Press Code in that both cover extremely hazardous occupations. The forging code covers work on hot metal and the power press code on cold metal.

The first draft of the forging code was submitted at the twelfth safety congress of the National Safety Council in Buffalo last fall, after a year's work by the code committee. The changes agreed upon at the presentation, have been made in the revised code.

The chairman of the code committee is G. A. Kuechenmeister of the Dominion Forge & Stamping Co., Walkerville, Ont., and the secretary, Sidney J. Williams, chief engineer, National Safety Council. As printed by the National Safety Council, the tentative code is illustrated with 22 photographs and diagrams. General criticism of the revised draft has been invited and all such criticisms will be reviewed by the committee before the code is finally approved as a tentative American standard.

### Cement Industry Reference Book

A 40-page pamphlet has been issued by the Portland Cement Association on the 100th anniversary of the invention of Portland cement. The aim of the booklet is stated to be to furnish a short but complete history of the industry, to give authoritative facts and figures about important uses of concrete and to give reference tables on a wide variety of matters connected with cement and its uses. Among the tables is one showing the year by year production of Portland cement in the United States for forty-four years, with estimates for the 1923 production of the world. These estimates show outside the United States a pro-

duction of 129,000,000 bbl., while the American production is given as 137,377,000 bbl., or more than half of the total.

From a table of the mileage of roads, it appears that in only three States, Indiana, New Jersey and Ohio, is more than 40 per cent of the total mileage surfaced, while Indiana is the only one which shows over 50 per cent; for the United States, 422,724 miles of surfaced road, out of a total of 2,940,378 miles of road.

### Painting in Relation to Safety

The National Safety Council, in a recent publication, sets forth nine beneficial effects of proper painting as an aid to interior illumination. These are:

1. Reduction of accidents.
2. Greater accuracy in workmanship.
3. Decreased spoilage of product.
4. Increased production for the same labor cost.
5. Less eye strain.
6. Better working conditions.
7. Less labor turnover.
8. Better order, cleanliness and neatness in the plant.
9. Easier supervision of the men.

Proper painting increases illumination, aids in light diffusion and eliminates glare.

"The amount of light reflected by a given paint depends, of course, upon its color," says Walter Sturrock, General Electric Co., author of the article. "White paint shows the highest reflection factor, that is, it reflects the greatest percentage of light striking it. A pure white surface will reflect light of all colors at equal efficiency. On the other hand, a paint having some color in it such as blue, for example, will be an efficient reflector of blue light but will absorb practically all red rays of light striking it. For light from Mazda lamps, a yellow paint has a higher reflection value than some of the other paints. Where white paint is not wanted, a paint of light cream tone may be used without marked sacrifice in lighting effectiveness."

Ninety members of the Akron, Ohio, Y. M. C. A. last week inspected the plants at East Youngstown of the Youngstown Sheet & Tube Co. and at Farrell, Pa., of the American Sheet & Tin Plate Co.



# Increasing Probability of Wage Reduction

As Viewed at Youngstown, Revision Is Likely to Come as Trend  
of Prices Continues Downward—Better Understanding  
Between Employers and Employees

YOUNGSTOWN, June 10.—Probabilities of a wage reduction in the steel industry loom larger, with prices trending toward definitely lower levels. It is indicated, however, that any general reductions will be deferred as long as possible, and it is unlikely they will be announced before fall. In the meantime, though, the problem of cutting production costs is receiving attention and wage reduction offers the most likely avenue to effect such a result. Labor constitutes the largest single item entering into costs, and naturally therefore offers the most certain method of reducing them.

It is pointed out that progressive companies in the steel industry have within recent years adopted extensive economy programs and have cut costs in all possible directions. Improved machinery and equipment has been installed wherever it would effect economies. Unnecessary workmen in specific operations have been eliminated; tonnage production has been increased in proportion to the number of men employed, as a result of these measures. Substantial economies have been effected, but apparently the buying public feels, to some extent at least, that prices are still somewhat out of line.

Competition, then, in the final analysis, will be the deciding factor and will force reductions which mill managers are reluctant to put into effect. If wage cuts become necessary for producers to meet competition, there is no question that they will be instituted.

## Reductions in Other Districts

Wage reductions recently announced for iron and steel workers at Birmingham and for coke workers in the Connellsville district are regarded as having a bearing on the situation. Here and there small interests operating plants allied with the steel industry are announcing wage revisions. These cases, it is felt, will have an influence on the ultimate attitude of the industry at large.

On the contrary, there is no question that steel property executives are loath to approach the problem. In the Midwest they feel that steel mill labor has already shared to a larger extent than it should have in wage liquidation. They believe wages in the industry have been reduced to a point where they are now out of line with wages paid in other industries, chiefly in building construction, where the trend has been upward, especially in unionized centers. Employers, likewise, do not desire to place themselves at a disadvantage with other employing interests.

In this district leaders in the industry have rigidly adhered to the policy of maintaining the highest wage rates possible consistent with prices which their finished products would bring. In consequence those employed in the industry, especially the American-born, have been enabled to maintain living standards above the average of American workmen. Cartoons which have appeared in the press depicting steel workers going to and from their work in motor cars have not been based on idle fancy. The American workman in the steel industry has enjoyed a measure of prosperity, owing to the fair wages paid, which workers in few other industries have approached. This, of course, applies to the skilled and semi-skilled men.

## The Shorter Hour Factor

Another factor in the situation which now looms with larger importance than before is the reduced working hours in effect in the steel plants. Elimination of the 12-hr. day and the abandonment, to a large extent, of the 10-hr. day have in themselves brought about reduction in the earning capacity of steel workers. For

the most part employees in the industry are paid on an hourly basis, except those in the steel plants and rolling mills who work on a tonnage rate. All skilled employees in rolling mills subscribing to the sliding scale wage agreement of the Amalgamated Association are paid on a tonnage basis. Their compensation, likewise, has been materially reduced by reason of intermittent operations due to slack business.

In view of this situation the workers are inclined to regard a suggested wage cut with anything but favor. However, the fact that reduced wages might bring about more regular employment and consequently a more sustained income from their labor, if indeed not a larger income by reason of steadier operations than they are receiving under present conditions, offers an alternative argument with considerable force.

It is a noteworthy consideration that within comparatively recent years, in the Youngstown district, radicalism in the ranks of iron and steel labor has lost much of its influence. Workers are more disposed to reason out their own problems rather than to have labor leaders, frequently imported, do their thinking for them. Undoubtedly the sincere effort of employers to play fair with their men has been responsible in large degree for this change of heart. The employee representation plan, as in effect at the properties of the Youngstown Sheet & Tube Co., whereby workers are given a certain voice in determining their own working conditions, has likewise exerted a wholesome influence in this respect.

## Important Change of Attitude

This change in the attitude of workers toward the management of the several industries is a significant one whose importance is not to be discounted. When the 8-hr. day was instituted in departments of Youngstown district mills misunderstandings arose, due in some measure to inequalities. However, no serious disorders occurred. In some departments the men refused to work for a short period. But they were willing to listen to explanations of the management and quickly returned when they learned that maladjustments would be ironed out.

This indicated a respect for the management, a confidence in its integrity and sound intentions, which the great majority of workmen would not have publicly voiced seven or eight years ago. It is no exaggeration to say that iron and steel workers in the Youngstown district have less sympathy today with the professional labor disturber than ever before. Past experiences have taught them that such elements create more trouble than good, that they are frequently destructionists, and that more is to be gained by conference with the employers and their representatives than by walking out and attempting to prevent other men from taking their places.

## Confidence Increased

Perhaps the chief benefit from the employee representation plan, as manifest in this district, is the spirit of confidence it has instilled in the men with respect to the sincerity and honesty of motive of the employers. Calm discussion of mutual problems across a conference table, at regular intervals, has revealed to the workers that the problems of management are akin and closely connected with their own problems; that a mutuality of interest prevails which cannot be overbalanced in either direction. It has likewise served to give the employers a keener insight into the problems of the men, it has created a human contact which has been desirable, it has served to bring into more conspicuous focus the fact that the workers in the industry are men of flesh

and blood who cannot in any degree be considered as machines or classed with equipment; the human equation has been brought more forcibly to the attention of employers.

Workers in the industry are more prone to apply reason in the solution of their problems and those of the industry; it is unquestionably true that they know more about the particular problems which face the management than ever before. A closer relationship has been established between the men and the employers than ever existed before; old suspicions have been dissipated to a large degree. It is not an uncommon sight to see men in greasy overalls, employed as millwrights, electricians or engineers, in the ante-room of an official, awaiting to discuss some mutual problem. Officials do not spend all of their time behind mahog-

any desks, but have rubber boots and a raincoat at hand, to be ready for any emergency which may develop in the plant.

All of the distance between men who labor in the mills and the executives has not been bridged, but the gap has been appreciably diminished; in some companies more than in others, and the difference is due to the greater degree of interest in the employees' welfare displayed by one interest as against another.

If a general wage reduction eventually comes as an outcome of prevailing slackening in demand and apparent belief that prices should be more closely in line with buyers' ideas, it is certain workers in the industry, at least in this section, will more fully comprehend the reasons for it, and will accept it with a better understanding and with less complaint than ever before.

## GERMAN MACHINERY EXPORTS

### Drop of Nearly Half Between 1913 and 1923— Heavy Loss in All Except Office Machinery Lines

BERLIN, GERMANY, May 15.—March machinery exports were 20,600 metric tons, which is about the same as in February, but is little more than half the 39,900 tons, which was the average monthly export in 1922. The Association of Machine Construction Concerns (Verein Deutscher Maschinen-Bau-Anstalten) aims at economies by organizing companies and firms in groups, with aim of standardization and of confining producers to the kinds of machinery for which they are best fitted. The report of this organization for 1923 mentions that the quarterly export per capita of employees was only 0.186 metric ton, against 0.227 ton in 1922.

In machine construction proper are now engaged 750,000 persons, which is 14 per cent more than in 1913 and 19 per cent more than in 1919. The report complains of a lack of really skilled workmen. Improved conditions for the year 1924 as a whole are predicted.

#### Figures for 1913 and 1923

Germany's exports of machinery in the latest year and the last pre-war year were: 1923, total 352,293 metric tons of value 444,900,000 gold marks (\$105,886,000); 1913, total 672,930 tons, value 781,820,000 gold marks (\$186,073,000). Only in the special American domain of typewriters, calculating machines and cash

registers do present German exports exceed the pre-war. Details are:

Kind of Machinery	Metric Tons	
	1913	1923
Textile .....	73,795	45,191
Locomotives .....	54,445	17,163
Machine tools .....	90,279	49,762
Agricultural .....	40,708	26,686
Others, excluding electrical..	277,705	142,812
Electrical .....	41,889	26,937
Machine parts, boilers, etc..	93,338	42,418
Typewriters, calculators, cash registers .....	771	1,324

The machine and engineering branch is active as regards home trade, but export trade is highly unsatisfactory, reason being that German prices here are not below foreign. In this respect, however, the French and Belgian franc recoveries have restored some of Germany's former advantage. Why Germany cannot always compete is a mystery, because skilled workmen's wages in this branch never exceed in gold 80 per cent of the pre-war, whereas gold wages elsewhere in Europe are mostly considerably above the pre-war level.

The markets for drills is demoralized owing to the large holdings of ready drills in hands of dealers, who sell at very low prices. This has compelled the Deutsche Spiralbohrer Verband syndicate, representing manufacturers, to cut prices by between 40 and 50 per cent.

[In comparison American machinery exports in 1913 were \$127,981,000, or 69 per cent of the German, and British machinery exports were \$180,200,000, or 97 per cent. American exports in 1923, at \$288,208,000, exceeded the German by 172 per cent.—Editor.]

## UPPER SILESIAN DEPRESSION

### Mining and Metal Industries Lack Orders— French Efforts to Obtain Control

BERLIN, GERMANY, May 15.—The East Upper Silesian mining and metal industry is in a depressed condition. Coal deliveries to Germany, Roumania and Czecho-Slovakia have declined, and Poland's own consumption from this source is about 50,000 tons a week below normal. Smelting concerns complain of lack of orders; here again German purchases have fallen off. In pig iron Czech and French competition is effective. Through her good rail and Elbe River connections Czecho-Slovakia is better equipped for delivery of iron to Central Europe. East Upper Silesian sales to the Balkans are small; in particular Roumania, which formerly bought from Silesia much rolled material, has become a bad customer.

German editors consider that these facts confirm their arguments against the handing over of this former territory to Poland in June, 1922. Coal production in the Polish Upper Silesian area in 1923 totaled 26,479,946 metric tons, against 25,791,612 tons in 1922, and 31,937,475 tons in 1913. But the consumption of this coal in Poland, including Polish Eastern Silesia, in 1923 was only 11,183,094 tons, against 18,348,938 tons in 1922.

Excluding Polish Eastern Silesia, Poland took only 5,391,122 tons; and (after allowing for deliveries to Polish Posen and to Polish lands formerly belonging to Austria) the former Russian Poland, which was to supply a new market for the detached German Silesian coal industry, took only about 1,400,000 tons. In 1923 Polish Eastern Silesia delivered to the present area of Germany 8,015,953 tons, so that Germany remains the chief customer for this coal.

#### French Control Attempted

The French continue to make efforts to bring industrial Polish Silesia under their control. Poland is not in a position to finance these great industries. A recent agreement between Poland and the Giesches Erben A. G., one of the biggest Upper Silesian undertakings, giving the Polish state a one-third interest, is stated to have been based on French financial support. One report is that a Franco-Polish agreement exists obliging Poland to share officially in the Upper Silesia industries and, for certain considerations, to transfer its share to France. The local center of French influence is the "Skarboferme" Company, president of whose board of control is the noted Polish agitator, Korfanty. The company has seven coal mines in Königshütte, Bielschowitz and Knurów, also cokeries and other works, employing in all 17,500 men.



# Machinery Markets and News of the Works

## LARGE EXPORT INQUIRY

### General Electric Co. Asks Prices on Hundreds of Tools for Japan

#### Market Generally Very Quiet and Sales are at a Minimum—Railroad Prospects Fair

Duplicating to a large extent an inquiry put out recently by a Japanese export house, the General Electric Co. has issued from Schenectady, N. Y., lists containing hundreds of machine tools wanted for the Japanese General Electric Co.'s plant, which was wholly or partially destroyed by the earthquake last September.

Twice before in the past year this list has appeared, once about a year ago, when no action was taken, and again about a month or two ago, when an inquiry for 900 tools was sent out by the Asano Bussan Co., New

York. Apparently the tools are to be bought direct by the General Electric Co.

Buying of machine tools is greatly restricted and plants are operating at rates varying from 30 to 50 per cent. Prospects are none too good, being best in the railroad field, as it is expected that considerable purchasing will follow the railroad conventions being held this week and next at Atlantic City. Several large lists, which have been pending for some time, may be closed shortly after these conventions.

The Chicago Board of Education has sent out an inquiry for about 150 metalworking and woodworking machines. The La Crosse, Wis., Board of Education has bought about \$10,000 worth of tools for public schools.

Industrial companies are showing little interest in new equipment, this condition being quite general throughout the country.

## New York

NEW YORK, June 10.

**R**ESTRICTED buying of machine tools continues and the machine-tool trade sees little hope for improvement during the next two months. Some of the machine-tool plants are down to about 30 or 35 per cent operation and few are doing better than 50 per cent. Industrial plants throughout the East, particularly those engaged in making parts and accessories for the automobile trade, are curtailing production.

The General Electric Co. has sent out large inquiries from Schenectady for machine tools for its Japanese plant. These inquiries are practically duplicates of lists recently sent out by the Asano Bussan Co., 165 Broadway, New York, in behalf of the Japanese General Electric Co. The latter's lists totaled about 900 tools and it is presumed that the inquiries from the General Electric Co.'s purchasing headquarters at Schenectady will cover about the same number of machines. Several representatives of the Japanese works are reported to be on their way to the United States to visit a number of machine-tool plants preparatory to selecting the equipment they will need to rehabilitate the Japanese works which was greatly damaged in the earthquake.

The North Carolina State Highway Commission has purchased a 600-lb. steam hammer; the Southern Wheel Co., Birmingham, a 400-ton hydraulic wheel press; the St. Louis-San Francisco Railroad, a combination journal and axle lathe; the Otis Elevator Co., New York, a gate shear and gate cutter, and the New York Central, a vertical drilling machine.

The Premier Storage Battery Co., Inc., 7 Skillman Place, Long Island City, has plans for a two-story and basement repair and service works, 50 x 98 ft., estimated to cost \$32,000 with equipment, for which plans have been drawn by Baker & Ludwig, 9 Jackson Avenue, architects.

The Davis Equipment Co., 50 Church Street, New York, is in the market for a quantity of equipment for an iron foundry, including 84-in. cupola; two ladles, 30 and 35 tons each, respectively; cupola charging buggies, balanced type; molding machines, Osborne type or equivalent; scale on narrow gage track, 4000 lb. capacity; sand mixer, and miscellaneous apparatus.

Weinberger & Weishoff, Inc., 345 Madison Avenue, New York, architect, has plans for a five-story automobile service,

repair and garage building, 96 x 100 ft., at 503-9 West 166th Street, estimated to cost \$175,000 with equipment.

The Empire Architectural Iron Works, 15 East 137th Street, New York, has completed plans for a one-story addition, 60 x 100 ft., to cost \$23,000. Rotholz & Golden, 311 Lenox Avenue, are architects.

The Utica Gas & Electric Co., Utica, N. Y., will make extensions in its steam-operated electric power plant and install additional equipment.

The American Consulate, Sao Paulo, Brazil, has received an inquiry for American machinery for a cottonseed oil mill; catalogs and information to be sent to the Industrial Machinery Division, Room 815, Bureau of Foreign and Domestic Commerce, Washington, marked "for transmission to the American Consulate, Sao Paulo, Brazil," reference No. 130502.

The Adirondack Power & Light Corporation, Schenectady, N. Y., is disposing of a bond issue of \$5,000,000, a portion of the proceeds to be used for extensions and improvements, including the completion of a steam-operated electric generating plant addition near Amsterdam, N. Y., now in course of building. Charles S. Ruffner is first vice-president and general manager.

Anton Scholl & Son, 380 Flushing Avenue, Brooklyn, manufacturers of commercial automobile bodies, are having plans drawn for a one-story addition, 25 x 105 ft., to cost \$40,000 including equipment.

The City Corrugated Paper Products Co., 214 East Twenty-fourth Street, New York, has leased the four-story and basement building, 144 x 250 ft., at 622-40 West Fifty-seventh Street, and will remodel for a new plant. The present works will be removed to the new location and additional machinery installed.

The United Hudson Electric Corporation, Poughkeepsie, N. Y., is planning the construction of an addition to its hydroelectric generating plant in the Sturgeon Pool section. It is also completing arrangements for the purchase of the plant and property of the Honk Falls Power Co., Napanoch, near Ellenville, N. Y., and will make extensions. Bonds for \$2,000,000 are being sold, a considerable portion of the proceeds to be used for the expansion.

Charles A. Schaefer, Jr., 394 East 150th Street, New York, architect, has completed plans for a two-story addition to the service, repair and garage building of the Laurel Hill Terrace Garage Co., 2497 Amsterdam Avenue, to be 84 x 100 ft., estimated to cost \$105,000 with equipment.

The American Consulate, Kingston, Jamaica, has information regarding a company which has acquired local property for the erection of a new sugar mill with power house. Samuel W. Honaker is consul in charge.

The New York Central Railroad Co., C. S. White, purchasing agent, Room 344, 466 Lexington Avenue, New York, will take bids until June 16 for one 600-kw. synchronous

motor-generator set; and one 400-ampere balancer set, with switchboard and appurtenances, serial contract No. 15-1924.

Behrer & Co., 77 Beekman Street, New York, manufacturer of plumbing equipment and supplies, is taking bids for a new one-story plant, 100 x 200 ft., at Mineola, L. I., for which plans have been drawn by John E. Nitchie, 63 Park Row, New York, architect.

The Department of Railways, Tokio, Japan, is perfecting plans for the construction of a hydroelectric generating plant on the Shinano River, about 100 miles from the city, to cost \$20,000,000 with steel tower transmission system.

The Board of Education, Caldwell, N. J., plans the installation of manual training equipment at its proposed three-story high school, estimated to cost \$250,000, for which Starrett & Van Vleck, 8 West Fortieth Street, New York, architects, will prepare plans.

The Day-Elder Motors Corporation, Irvington, N. J., manufacturer of motor trucks, has work in progress on a one and two-story assembling and parts plant, 100 x 308 ft., to cost \$95,000. The capacity of the former works at 20 Colt Street will be considerably increased with additional equipment at the new location.

The Burstein Body Works, 688 South Fifteenth Street, Newark, N. J., manufacturer of automobile bodies, is taking bids on a general contract for a one-story addition estimated to cost \$30,000, for which M. B. Silberstein, 119 Springfield Avenue, is architect.

The Federal Folding Paper Box Co., 17 Marcy Avenue, Brooklyn, has leased the building of the Schroeder Lamp Works, Tenth Street and Jersey Avenue, Jersey City, N. J., for a new factory and plans the early installation of machinery.

## Philadelphia

PHILADELPHIA, June 9.

**T**HE Union Tank Car Co., Point Breeze, Philadelphia, has plans for an addition to its construction and repair shops at Thirty-second and Ritner Streets, for which foundations will soon be laid.

The Philadelphia Insulated Wire Co., 200 North Third Street, Philadelphia, has awarded a general contract to the A. Raymond Raff Co., 1635 Thompson Street, for extensions and improvements in its buildings at Third and Florist Streets, to cost \$46,000.

The Moore Push Pin Co., 133 Berkley Street, Philadelphia, manufacturer of thumb tacks and kindred metal goods, has awarded a general contract to Harry Gill, Jr., 2515 Germantown Avenue, for a one-story addition, for which plans were prepared by the Ballinger Co., Twelfth and Chestnut Streets, architects.

The Bureau of Supplies and Accounts, Navy Department, Washington, will take bids until June 24 for 100 strainer pumps, schedule 2305, for the Philadelphia Navy Yard.

Joseph Weber, 1415 East Moyamensing Avenue, Philadelphia, operating a general machine repair works, has filed plans for a two-story shop addition.

The Brinton Motor Truck Co., 5806 Filbert Street, Philadelphia, has filed plans for a one-story addition, to be equipped as a machine shop. J. E. Brinton is head.

The Foreign Trade Bureau, Philadelphia Commercial Museum, has received an inquiry from Rustomji Nowroji Bapasola, care of Lloyd's Bank, Ltd., London, England, operating at Bombay, India, for information regarding American iron and steel products, including fencing wire, galvanized wire, galvanized sheets, bolts, nuts, rivets, barbed wire, galvanized pipes, etc.

Abraham Slatko, Philadelphia, has leased a floor in the building at 1029-33 Ridge Avenue, for a new plant to manufacture electric lighting fixtures.

The Union Paving Co., Thirtieth Street and Lancaster Avenue, Philadelphia, will build a new asphalt-mixing plant with mechanical conveying, hoisting and other equipment to cost \$60,000.

The Board of Public Works, City Hall, Philadelphia, has awarded a general contract to the Kober Construction Co., 34 South Seventeenth Street, for a steam power and heating plant at Richmond Street and Wheatshaf Lane, estimated to cost \$87,000 with equipment.

The Board of Education, Delanco, N. J., plans the installation of manual training equipment in the new high school estimated to cost \$175,000, for which bids are being received on a general contract until June 21.

The Berkshire Electric Co., Reading, Pa., has made application to issue bonds for \$60,000, the proceeds to be used for extensions and improvements.

The York Mfg. Co., York, Pa., manufacturer of ice and refrigerating machinery, has filed plans for a two-story addition, estimated to cost \$175,000 including equipment.

The Calcite Quarry Co., Myerstown, Pa., is in the market for a tractor, caterpillar type, to be used in connection with a steam shovel.

The Common Council, Fleetwood, Pa., is said to have plans under advisement for a municipal electric light and power plant, for which estimates of cost will be asked soon.

Edward W. Peters, 103 Lower Mulberry Street, Danville, Pa., has inquiries out for a hoist and trolley, worm-gear, about 10 tons capacity; also for one clamshell bucket, 1 cu. yd. capacity.

Officials of the Pennsylvania Power & Light Corporation, Allentown, Pa., are organizing a subsidiary, the Franklin-Lycoming Power & Light Co., to install and operate a plant and system at Franklin Township.

Manual training equipment will be installed in the new junior high school to be erected at Wilkes-Barre, Pa., estimated to cost \$200,000, for which bids will be asked on a general contract in the near future. Robert Ireland, 81 North Washington Street, is architect.

The Bethlehem Shipbuilding Co., Bethlehem, Pa., is reported to be perfecting plans for the construction of a plant at Honolulu, Hawaii, including the removal of a dry-dock now at its Alameda, Cal., yard, to this location. The project will involve close to \$2,000,000.

The John Wood Mfg. Co., Conshohocken, Pa., is inquiring for a gap press, capable of punching 6-in. by 6-in. holes in 18-gage sheets.

## Chicago

CHICAGO, June 9.

**I**N a quiet market, interest is centered in buying for vocational schools. A list put out by the Chicago Board of Education calls for over 150 metal-working and wood-working tools. The La Crosse, Wis., Board of Education has closed for \$10,000 worth of machine tools. Prospects for early action on pending railroad lists are brighter. The Santa Fe has closed for four 96-in. boring mills and other orders against its extensive inquiry are expected to follow shortly. The Burlington is about to place orders for its new Galesburg, Ill., steel car shop. The Union Pacific, on the other hand, has decided to postpone purchases for its subsidiary lines. At the moment industrial buyers are showing little interest in the market.

### Chicago Board of Education

#### For Senn High School

Eleven geared head motor-driven 12-in. x 5-ft. engine lathes.

#### For Crane Technical High School

Fifty-five 14-in. x 5-ft. variable speed motor-driven engine lathes.

One 16-in. x 6-ft. variable speed motor-driven engine lathe.

Two 14-in. x 6-ft. variable speed motor-driven engine lathes.

Four motor-driven No. 5 Marvel power saws with automatic stock feed complete.

Six motor-driven sensitive bench drill presses, 1/4-in. capacity.

One motor-driven double end ball bearing 12-in. disk grinder.

Three 14-in. motor-driven plain crank shapers.

Four universal motor-driven milling machines, table to have working surface of 45 x 8 1/2 in., 28-in. automatic longitudinal feed, 10-in. automatic cross feed, 16-in. vertical adjustment.

Four Hardinge Cataract quick change swing precision lathes equipped with motor drive.

Six 20-in. x 1 1/2-in. Ransom motor-driven wet tool grinders.

Two 24-in. sliding head motor-driven drill presses.

One 1/2-in. motor-driven geometric threading machine.

One 3/4-in. motor-driven geometric threading machine.

Four three-spindle high speed ball bearing drill presses driven by constant speed motor mounted on rear of column.

Two special combination furnaces, each consisting of one No. 0 Stewart tool dressing forge 3 1/2 x 5 in. x 7 in. deep, one Stewart muffle furnace, 4 x 7 1/2 in. x 13 1/4 in. deep, one Stewart cyanide furnace with 6 x 12-in. pressed steel pot equipped with hood, and one No. 35 Stewart motor-driven blower unit with wall brackets for mounting.

Two No. 4 Stewart high speed furnaces, 4 x 8 in. x 12 in. deep, to be equipped with No. 35 Stewart improved positive pressure motor-driven blower.

Three No. 2 Ohio motor-driven universal cutter and tool grinders.

Four Whiton single-spindle centering machines complete with three-jawed chuck, drill socket No. 31 and necessary wrenches.

Seven Blount 4 to 11-in. swing by 4-ft. motor headstock hand lathes.

Two 9-in. x 4-ft. quick change gear motor-driven engine lathes.



## The Crane Market

The market continues quiet for both electric overhead and locomotive cranes, as far as new inquiries are concerned. A number of orders are pending on overhead cranes and will probably be closed shortly. A recent inquiry is said to have been issued by the Brooklyn-Manhattan Transit Corporation, Brooklyn, N. Y., for wall cranes and standard overhead cranes for new shops at Coney Island. Present prices will be only for estimating. The Pennsylvania Railroad, Philadelphia, is expected to close soon on two 10-ton, 85-ft. span gantry cranes on which all bids are understood to have been submitted. Early action is also expected on the 100-ton crane asked for by Thomas E. Murray, New York, for Utica, N. Y. The bucket handling cranes for which Abbott, Merkt & Co., New York, Stone & Webster, Boston, and Dwight P. Robinson & Co., New York, are in the market will probably be awarded soon. The 11 cranes for the Sparrows Point, Md., plant of the Bethlehem Steel Corporation are being purchased from Bethlehem, Pa. Although reported to have been bought, actual award of the five locomotive cranes for the Chesapeake & Ohio Railroad, apparently has not yet been made.

Crane business has quieted down considerably in the Pittsburgh district, but the amount of pending business still is large and there are strong hopes that the remaining five cranes for the transformer plant at Sharon, Pa., of the Westinghouse Electric & Mfg. Co., will be let soon. There are two 3-ton cranes and three of 5-tons capacity.

Two cranes for the machine shop of the Homestead works, Carnegie Steel Co. are likely to be placed soon.

In the Cleveland district it is reported that keen competition appears to be resulting in considerable price cutting. Inquiries for electric traveling cranes are pending from the Burlington and the Chicago, Joliet & Eastern and the International Harvester Co.

Among recent purchases are:

Westinghouse Electric & Mfg. Co., Pittsburgh, a 5-ton, 56-ft. 2-in. span, 3-motor crane for Attica, N. Y., from the Milwaukee Electric Crane & Mfg. Co.

United States Aluminum Co., New Kensington, Pa., a 5-ton overhead crane from the Northern Engineering Works.

Bangor & Aroostook Railroad Co., Bangor, Me., a 15-ton, 57-ft. span, 4-motor, overhead traveling crane from an Eastern builder.

Sieberling Refining Co., Sieberling, Tenn., a 35-ton, 50-ft. boom, used McMyler locomotive crane from Philip T. King, New York.

Manning, Maxwell & Moore, New York, four 10-ton, special hand power trolleys from the Chisholm-Moore Mfg. Co.

General Box Co., Bogalusa, La., a 25-ton locomotive crane from the American Hoist & Derrick Co.

Michigan Central Railroad, Detroit, a ditcher from the American Hoist & Derrick Co.

Three No. 2 Langeller three-speed motor-driven bench drills.

One Illinois Tool Works die filing machine.

One motor-driven J and B filing and sawing machine.

One No. 4 Burke motor-driven bench milling machine.

One Hardinge 11-in. x 4-ft. quick change swing motor-driven precision engine lathe.

Two Cincinnati type B H motor-driven bench grinders with two wheels 6 x 3/4 in.

One Cincinnati type B H motor-driven floorstand type grinder.

Three one-spindle high speed motor-driven ball-bearing drill presses.

One 24-in. motor-driven single surface planer with four power-driven rollers.

One universal motor-driven circular saw bench.

One motor-driven 12-in. head hand jointer.

One motor-driven 30-in. ball bearing band saw.

One No. 25152 type B H Cincinnati Electrical Tool Co. electrical grinder.

Eleven machines of Peck, Stow & Wilcox Co. as follows:

Two No. 969 revolving machines.

Two No. 63 bar folding machines.

Two No. 382A slip roll forming machines.

One No. 502 grooving machine.

Two No. 758 vertical wire wheels.

One No. 186 squaring shear.

One No. 1001 73-in. cornice brake.

The American Sanitary Mfg. Co., Abingdon, Ill., has awarded a general contract for a one-story addition, 90 x 120 ft., to cost \$75,000.

R. R. Donnelly & Co., Chicago, have awarded a general contract for a six-story reinforced concrete printing plant addition, 75 x 190 ft., at the corner of Calumet Avenue and Twenty-first Street, to cost \$700,000.

J. Klicka Co., 1826 South Washtenaw Avenue, Chicago, manufacturer of moldings, will construct a one-story factory addition, 85 x 125 ft., to cost \$20,000.

The Lee Electric Co., Clarinda, Iowa, is preparing to build a power plant addition.

The Caldbeck Tool & Mfg. Co. has moved from 208 East Walnut Street to 307-11 East Third Street, Des Moines, Iowa, and doubled its floor space. The company manufactures dies, molds, radio condensers and does miscellaneous machine work.

The Interstate Iron & Steel Co., 104 South Michigan Avenue, Chicago, is in the market for a No. 4 Nazel air hammer, direct connected to a 15-hp., 440-volt, three-phase, 60-cycle motor, for handling 5 x 5 squares, type N preferred.

Fire, May 30, destroyed the plant and equipment of the H. C. Johnson Piano Co., Bellevue, Iowa, with a loss of \$200,000 including machinery. No rebuilding plans have been made.

The Wisconsin Light & Power Co., Winona, Minn., has revised plans for a one-story addition to its steam power plant to cost about \$50,000. Mead & Seastone, Journal Building, Madison, Wis., are engineers.

Manual training equipment will be installed in the three-story junior high school to be erected in the Lynnhurst District, Minneapolis, Minn., estimated to cost \$600,000, for which it is expected to call for bids on a general contract

early in August. E. H. Hafey, 245 Ninth Avenue, North, is architect.

The American Sanitary Mfg. Co., Abingdon, Ill., manufacturer of pipe, plumbing equipment, etc., has awarded a general contract to Bohrer, Dunlevy & Co., Abingdon, for a one-story addition, 90 x 120 ft., estimated to cost \$80,000. Lockwood, Greene & Co., First National Bank Building, Chicago, are architects and engineers.

The Central Power Co., Grand Island, Neb., is disposing of a bond issue of \$1,500,000, a portion of the proceeds to be used for extensions in power plants and system.

Pickands, Mather & Co., Sellwood Building, Duluth, Minn., has awarded a general contract to R. J. McLeod & Co., Builders' Exchange, for the erection of a one-story mechanical shop at its mining properties at Keewatin, Minn.

The National Lead Co., International Life Building, St. Louis, has awarded a general contract to the Fruin & Colnon Construction Co., Merchants' Laclede Building, for a three-story addition, 80 x 185 ft., at Granite City, Ill., estimated to cost \$150,000.

## Buffalo

BUFFALO, June 9.

**M**ACHINE tool business for June is beginning fairly well, but sellers are inclined to believe this is a flurry, and are not very optimistic of the continuance throughout the month. Among used tools the sale of a Diamond surface grinder, formerly the property of the Herschell-Spillman Co., is noted. Most of the larger tools, including multiple drills and milling machines of this lot, remain unsold. A local manufacturer of power saws booked two good orders, one from the East and another from the Pacific Coast.

Contract has been awarded by the Buffalo Sintering Co., Buffalo, to the John W. Cowper Co., Fidelity Building, for its proposed plant on Marilla Street, to manufacture metal products, estimated to cost \$125,000 with equipment.

The St. Lawrence Transmission Co., Potsdam, N. Y., has applied for permission to erect a new electric power plant at Gouverneur, N. Y., for which plans will soon be drawn.

Manual training equipment will not be installed in the proposed high school to be erected at Akron, N. Y., for which bonds for \$150,000 have been voted.

The Board of Education, Telephone Building, Buffalo, will receive bids until June 18 for manual training equipment for elementary school No. 69. D. J. Sweeney is deputy superintendent.

The Meachem Gear Corporation, Syracuse, N. Y., has taken over the plant of the Weeks-Hoffman Corporation, manufacturer of tools, chucks, etc., for extensions. T. G. Meachem is president.

The Vacuum Oil Co., Rochester, N. Y., is said to be planning for the installation of electric-operated equipment at its new pumping station at Olean, N. Y.

The Northern New York Utilities, Inc., Watertown, N. Y., plans the construction of an automatic power substation on the Black River.

The Owego Light & Power Co., Owego, N. Y., has tentative plans under consideration for a new hydroelectric generating station with initial output of 700 kva.

## New England

Boston, June 9.

**B**USINESS in machine tools is still confined very largely to single items here and there. Boston's inquiry for five 12-in. and 14-in. Sydney lathes, a Blount grinder and two 12-in. Monarch lathes is the largest individual inquiry in many weeks. The city also will purchase considerable woodworking machinery. In the absence of new prospects dealers are endeavoring to round up business by personal solicitation, but with New England's metal working industry collectively operating at less than 60 per cent, buyers are not in a receptive mood.

Manufacturers of carwheel boring machines and axle lathes have advanced prices 10 per cent, the first concerted movement in prices noted in months. In addition, some of the most important makers of metal-working equipment have passed the word along that no more price cutting will be tolerated; that the policy hereafter will be to abide by list prices. These companies have proved to their satisfaction that price concessions will not bring business. Their action is the most constructive noted this year and has gone far in reestablishing confidence among machinery dealers in general.

Following the long depression in cotton textile and shoe manufacturing industries, New England manufactures in general, including the metal working, are slowing up operations perceptibly. One of the largest makers of textile machinery, upon which the machine tool and the pig iron furnaces depend for a large business annually, has sufficient unfilled orders on its books to insure present operations the remainder of this month. After that there is practically no business in sight. Another textile machinery maker is operating its foundry three days a week and its general plant four, while still another is operating on a greatly reduced force and on shorter time.

A majority of the New England automobile manufacturers are in financial difficulties, consequently banks are cutting down operations and purchases wherever possible. A leading maker of motorcycles has placed several departments on a three-day per week schedule, and a cut in schedules of other departments will shortly be announced. Foundries generally are melting at about one-third capacity. Some manufacturers of builders' hardware are beginning to feel the general contraction in business. They were up to the present one of the brightest industrial spots in this territory. Forge shops are experiencing difficulty in securing sufficient business to keep plants going even on reduced schedules. Heater and stove manufacturers, as industries, are the most active in New England. The latter, however, are not optimistic regarding the future.

George S. McLaughlin, 80 Boylston Street, Boston, is architect for the proposed machine shop to be erected by the school committee, Boston, in Charleston, opposite the high school. Details of plans will shortly be made public.

The Bridgeport Land & Title Co., Bridgeport, Conn., representing a corporation outside that State, identity of which is withheld, has purchased the property of the Lake Torpedo Boat Co., Seaview Avenue, Bridgeport, for approximately \$800,000. The purchaser, in turn, will sell at public auction June 17 and 18 lathes, screw machines, shapers, planers, grinders, slotters, milling machines, boring mills, compressors, locomotive cranes and other equipment included in the original purchase.

The R. Wallace & Sons Mfg. Co., Wallingford, Conn., is in the market for a 12 to 15-ton industrial locomotive, storage battery.

The Boutwell, Milne & Varnum Co., Barre, Vt., has awarded a general contract to the Roy Construction Co., Woodsville, N. H., for a two-story machine shop at its quarries at Graniteville, 50 x 160 ft., to cost \$75,000 including equipment.

The Travers Mfg. Co., Templeton, Mass., manufacturer of toys, children's vehicles, etc., has preliminary plans for rebuilding the portion of its local plant destroyed by fire May 24 with loss reported at \$100,000 including equipment.

C. L. Berger & Sons, 37 Williams Street, Roxbury, Boston, manufacturers of surveying and other engineering instru-

ments, will begin the erection of a two-story addition, 60 x 70 ft., estimated to cost \$55,000 with equipment.

The Kohler Co., 427 Commercial Street, Boston, manufacturer of enameled ware, has filed plans for a new building at 445 C Street, estimated to cost \$90,000.

The Missisquoi Pulp & Paper Co., Sheldon Spring, Vt., manufacturer of cardboard, etc., has disposed of a note issue of \$600,000, a portion of the proceeds to be used for extensions and improvements.

The American Enamel Co., Neville Street, Providence, R. I., has awarded a general contract to the C. I. Bigney Co., Providence, for rebuilding the portion of its plant recently destroyed by fire, including oven department, to cost \$60,000 with equipment.

Brewer & Co., Inc., Worcester, Mass., has begun the construction of a new lime plant at Winooski, Vt., consisting of 8 kilns, power house and machine shop. It will cost \$100,000 with machinery.

## Pittsburgh

Pittsburgh, June 9.

**M**ACHINE tool business still is dull in this district, with single tool orders only fair and action against the lists long before the trade disappointingly slow. The Westinghouse Electric & Mfg. Co., after closing against a few tools for the present quarter, is reported to have cancelled the inquiries for the remainder, amounting to about 30 items. The National Plate Glass Co., Glassmere, Pa., a subsidiary of the General Motors Corporation, has issued a list of 32 tools, but the trade here expects that the business will be closed in Detroit.

It is now probable that a month or two will elapse before the tools for the new machine shop of the Homestead works of the Carnegie Steel Co. will be distributed and it is doubtful if the dozen tools in a list issued by the Universal Portland Cement Co. for its plant at Universal, Pa., will be wanted much before fall. The National Tube list for Gary still is regarded as a live prospect, although no orders have been placed recently; the Youngstown Sheet & Tube inquiry for its Indiana Harbor plant, is of about the same status. There has been some buying by the Westinghouse Air Brake Co., Wilmerding, Pa., in connection with good sized orders for air brake equipment for railroad cars. Direct railroad buying is lacking. A shift among mechanical officials of the Pennsylvania Railroad is given as one reason why tools for the shops at Mingo Junction, Ohio, are not being placed. Interest in power equipment centers around a power plant and the electrification of three mills at the Cambria works of the Bethlehem Steel Corporation, Johnstown, Pa.

Foundations will soon be laid for a five-story plant, 70 x 73 ft., for the Hookless Fastener Co., Meadville, Pa., manufacturer of metal specialties, for which a general contract has been let to E. E. Austin & Son, Commerce Building, Erie, Pa. It will cost about \$65,000.

The Tompkins Fuel Co., Charleston National Bank Co., Charleston, W. Va., Harold P. Tompkins, president, plans the installation of an electric power house in connection with extensions at Cedargrove, W. Va., now under way, including the installation of a motor-generator set and accessory apparatus. Haulage motors and other electric power equipment will be installed.

The Board of Education, Braddock, Pa., is said to be planning to purchase manual training equipment, including shaper, annealing furnace, lathes and other tools, forge, etc.

Manual training equipment will be installed in the two-story and basement senior and junior high school to be erected at Beckley, W. Va., estimated to cost \$250,000, for which bids will be asked on a general contract before the end of the month. William B. Ittner, Board of Education Building, St. Louis, is architect.

The Western Maryland Railroad Co., Standard Oil Building, Baltimore, is said to be perfecting plans for rebuilding the portion of its locomotive shops and engine house at Bowers, Pa., recently destroyed by fire with loss estimated at \$200,000 including equipment.

J. J. Weiler & Sons, Robson-Prichard Building, Huntington, W. Va., operating a steel fabricating works, plan for the purchase of a straightening and bending machine, bolt cutter and other equipment.



Manual training equipment will be installed in the two-story high school to be erected at Etna, Pa., estimated to cost \$250,000, for which bonds are being arranged. P. C. Dowler, Magee Building, Pittsburgh, is architect.

Bids are being asked by the D. L. Clark Co., 503 Martindale Street, Pittsburgh, manufacturer of confectionery, for a one-story power house at its new factory at Merchant and Martindale Streets. The entire project will involve \$250,000. Peter Dietz, Lyceum Building, is consulting engineer.

## Cleveland

CLEVELAND, June 9.

**D**EMAND for machinery continues very light and there is nothing to indicate that sales during June will show any improvement over May. Nearly all business is in single tools. The only railroad order reported is one for a large turret lathe placed with a local manufacturer by the Central Railroad of New Jersey. The Oakland Motor Car Co. is figuring on a number of production machines, but with this exception the demand from the automotive field is almost at a standstill. Used machinery is not as active as it has been and considerable equipment continues to come on the market. About 30 machines in the die and tool shop of the Buckeye Engineering Co., Dayton, Ohio, will be offered for sale under receivership June 11.

The White Sewing Machine Co., Cleveland, which will move to new quarters on Winslow Avenue, has placed contract for a four-story addition, 100 x 100 ft.

The Thomas Cusack Co., Cleveland, manufacturer of outdoor advertising signs has taken bids for its proposed addition. It will be one and two-stories, with basement, 110 x 140 ft.

The Stitt Ignition Co., 16 First Street, Columbus, Ohio, has awarded a contract for a one-story addition, 35 x 160 ft.

Bids for the new plant of the Columbus Bolt Works, Columbus, Ohio, have been taken by Lockwood Greene & Co., engineers, Hanna Building, Cleveland. It will include a manufacturing plant, forge and hot bolt shop.

The Hill Machine Shops, Martins Ferry, Ohio, are in the market for equipment for a new shop now under construction.

S. M. Jokel, Nicholas Building, Toledo, Ohio, architect is preparing plans and specifications for a \$50,000 power house for which boilers, stokers and other equipment will be required.

## Milwaukee

MILWAUKEE, June 9.

**D**ULLNESS still characterizes the machine-tool trade, and while it has not become more pronounced the first week in June, no signs of an immediate improvement are discernible. At sales-rooms the report usually is that large buyers are absent from the market and sales consist largely of the lighter types of equipment to small shops, which are especially interested in used machinery as a reduced first cost proposition.

The Holt Lumber Co., Oconto, Wis., is in the market for a round lot of miscellaneous equipment for a machine and service shop as a part of the complete replacement of its hardwood manufacturing plant, destroyed by fire on May 20, with a loss of nearly \$900,000. A new main mill, 75 x 300 ft., a flooring mill, 100 ft. sq., and a battery of dry kilns will be built on a larger scale than the burned plant, and will require a complete list of new sawmill, planing mill and flooring mill machinery, with electric motor drive throughout. The investment is estimated at \$1,250,000.

The Uhlir Welding Co., 109 West Lawrence Avenue, Beloit, Wis., is doubling its floor space by taking over and remodeling a building at 622-624 Cross Street. It will purchase some additional machinery, welding and cutting tools.

The Aluminum Goods Mfg. Co., Manitowoc, Wis., has decided to dispose of the buildings comprising Plant No. 4, at St. Louis, acquired in 1918 and will consolidate the machinery and equipment with the Nos. 1 and 3 plants in Manitowoc. For the present no enlargement is contemplated at the main works. Most of the equipment has been purchased for additions made to the plant at Two Rivers, Wis. The Manitowoc concern also operates a factory at Newark, N. J.

The Oilgear Co., 398-402 Thirty-eighth Street, Milwaukee, has let the general contract to the Worden-Allen Co., local,

for a complete new machine shop, 100 x 175 ft., part two stories, at 701-705 Park Street, and is now inquiring for equipment. It manufactures hydraulic presses, broaching machines, variable delivery pumps and speed drives. The capacity will be increased about 50 per cent. An investment of about \$65,000 in building and machinery is planned.

The J. E. Gilbert Grinder Co., Milwaukee, has been incorporated with an initial capital stock of \$15,000 to manufacture tools, grinders, etc. The incorporators include Wallace P. Allen, 214 Greenbush Street; James E. Gilbert and William N. John, president, John Chuck & Tool Co., 506 Loan & Trust Building, Milwaukee. Production plans are not ready for publication.

The Display Fixture Mfg. Co., 1627 St. Paul Avenue, Milwaukee, manufacturer of metal, wood and glass display fixtures and specialties, will build a plant of its own at 1714-1716 St. Paul Avenue. It will be 50 x 120 ft., two stories, and cost about \$40,000. The general contractor is the L. V. Construction Co., 1120 Sixteenth Street, local.

The Grover Co., Milwaukee, Wis., has been organized by men formerly with the West Milwaukee locomotive and car shops of the Chicago, Milwaukee & St. Paul Railroad Co., and will establish a general machine and repair shop in a leased building, the location of which is withheld for the present. Complete equipment, including new and used tools, will be required. The principals are Raymond Grover, 3222 Mount Vernon Avenue; Henry H. Kurth and E. A. Grover.

The Prime Mfg. Co., 653 Clinton Street, Milwaukee, let the general contract to Paul Riesen's Sons Co., 1013 Humboldt Avenue, local, for a \$60,000 brass foundry addition, 81 x 74 ft., four stories, designed by Frank D. Chase, Inc., Chicago. Orders have been placed for all necessary foundry equipment, but some miscellaneous machinery and tools remain to be purchased. The concern specializes in railroad and automotive brass castings and finished materials.

The Cumberland, Wis., Board of Education is asking sealed bids until June 23 for the construction of a three-story high and vocational school, 127 x 120 ft., estimated to cost \$125,000 without equipment. The architect is W. L. Alban, 347 Endicott Building, St. Paul, Minn. W. G. Miller is secretary of the board.

The foundry, machine shop and real estate of the defunct International Cultivator Corporation, Oshkosh, Wis., has been purchased at sheriff's sale by R. A. Hollister, of Wood & Hollister, attorneys, Oshkosh, for \$18,000. New interests are said to be organizing to take over the operation of the plant as a custom machine shop. The works originally were built by the former Termaat & Monahan Co., gasoline engines and farm tools.

## St. Louis

ST. LOUIS, June 9.

**T**ENTATIVE plans are being considered by the Polar Wave Ice Co., 3654 Olive Street, St. Louis, for a two-story ice-manufacturing and cold storage plant at Columbia, Mo., estimated to cost \$200,000 with equipment. H. G. Glymer, Wainwright Building, St. Louis, is architect.

The Missouri Pacific Railroad asked for prices on June 2 and purchased on June 4 a radial drill, lathe, floor grinder, bolt cutter and compressor for immediate shipment to Fort Scott, Kan., to replace tools destroyed in a fire.

The Oklahoma Gas & Electric Co., Oklahoma City, Okla., is disposing of a bond issue of \$2,000,000, a portion of the proceeds to be used for extensions in generating plants and system. J. J. O'Brien is vice-president.

Slater Brothers, 60 North Gillette Street, Tulsa, Okla., are said to be arranging a list of equipment for installation in their new plant for the manufacture of oil-well apparatus, including drill presses, pipe bending machine, bolt machines, forge apparatus, punches and other tools.

The Inland Utilities Co., Hobart, Okla., has preliminary plans for the erection of a new steam-operated electric power plant estimated to cost \$100,000 with equipment. J. E. Wright is engineer.

The Common Council, Independence, Kan., is contemplating the installation of a pumping plant in connection with extensions in the sewage system estimated to cost \$35,000. G. H. Hackmaster is engineer.

The Bimmel-Ashcroft Mfg. Co., Poplar Bluff, Mo., manufacturer of spokes, handles and kindred products, has preliminary plans for rebuilding the portion of its plant recently destroyed by fire with loss estimated at \$38,000 including equipment.

The National Power & Light Co., Little Rock, Ark., operating the Arkansas Central Power Co., Houston Lighting & Power Co. and other utility properties, has issued bonds for \$800,000, a portion of the proceeds to be used for extensions.

Manual training equipment will be installed in the new high school to be erected at El Dorado, Ark., estimated to

cost \$337,000, for which bids are being asked on a general contract until June 25. Thompson & Harding, Little Rock, Ark., are architects.

The Standard Oil Co., St. Louis, is having plans prepared for a one-story storage and distributing plant at Salina, Kan., estimated to cost \$45,000 including equipment.

The Crystal Laundry Co., 108 Choctaw Avenue, El Reno, Okla., will build a one-story steam power house at its proposed mechanical laundry to cost \$35,000.

The Common Council, Harrisonville, Mo., is considering the installation of electric-operated pumping equipment in connection with a proposed waterworks plant and system, for which a bond issue of \$100,000 is being arranged.

Pumping machinery and other equipment will be required in connection with a pipeline under construction between Bristow, Okla., and Muskogee, Okla., for the Pure Oil Co., Columbus, Ohio. Forty miles of 8-in. pipe will also be required.

## Cincinnati

CINCINNATI, June 9.

**T**HE machinery market was very quiet the past week, scattered orders only being booked. Some shops have caught up with orders and are reducing hours of operation and in some cases working forces. There is an undertone of confidence, however, in future prospects, and the trade generally is looking for improvement. Considerable demand is noted for small tools for manual training schools, a manufacturer in this district having booked orders for 20 lathes during the past two weeks from various parts of the country. Used machinery continues fairly active.

Railroad buying is expected to develop following the convention at Atlantic City this week. It is reported that the Chesapeake & Ohio, which has occasionally been buying heavy tools, will shortly come out with a large list, and action is expected soon on the Santa Fe, Burlington, Southern and Norfolk & Western lists. The General Electric Co. and the Westinghouse Electric & Mfg. Co. have been buyers in a small way, and a local manufacturer reports an order for three lathes from Cuba.

The new plant of the Sawbrook Steel Castings Co., Lockland, Ohio, will be completed and in operation July 6. Installation of equipment is proceeding rapidly. It will make all kinds of steel castings.

The Detroit, Toledo & Ironton Railroad, which has been purchasing property at South Charleston, Ohio, is reported to be preparing plans for the erection of car and locomotive repair shops. It is said to be the intention to consolidate the shops at Jackson, Ironton and Springfield at the new site.

The Springfield Automotive Engineering Co., Springfield, Ohio, has purchased the Metropolitan Hotel property West Washington Street, and will remodel the building for a repair shop. Some machine tool equipment will be required later. Albert Acebrook heads the company.

The Do-Lan Co., Cincinnati, has been incorporated with a capitalization of \$50,000, and will manufacture a patented electric heating apparatus to prevent water in automobile radiators from freezing. The company's plant will be located at 128 Opera Place. No equipment is required at present. Timothy Dolan is president.

The Burkett Closed Body Co., Dayton, Ohio, has acquired a controlling interest in the Indiana Body Co., Richmond, Ind. There will be no change in the company's policy. L. T. Burkett is president of both companies.

Philip J. Gormley, P. O. Box 235, Lexington, Ky., has inquiries out for two watertube boilers, 300 to 400 hp. each, with auxiliary equipment.

The City Council, Morganfield, Ky., will take bids until June 24 for extensions and improvements in the municipal waterworks, including two high lift motor-driven centrifugal pumps, each with capacity of 350 gal. per min., and one low lift horizontal centrifugal pump, with capacity of 1350 gal. per min., with auxiliary equipment. Gannett, Seelye & Fleming, Randolph Building, Memphis, Tenn., are engineers.

The Mills Equipment Co., Chattanooga, Tenn., is in the market for a number of all-steel dump cars.

The Springfield Spring Co., Kenton Street, Springfield, Ohio, manufacturer of steel springs, has awarded a general building contract to A. G. Samuelson and B. O. Largent, Springfield, for a one-story, sawtooth type addition, 60 x 225 ft.

The Knoxville Power & Light Co., Knoxville, Tenn., will begin the erection of a one-story distributing works, with automobile service and repair department, estimated to cost \$75,000 with equipment. C. H. Harvey is president.

The Board of City Commissioners, Jackson, Tenn., will take bids until June 24 for one horizontal, triple expansion, condensing crank and flywheel pumping engine, capacity 6,000,000 gal. per day, also, for one horizontal cross compound condensing crank and flywheel pumping engine, like capacity. Samuel C. Lancaster, Jackson, is consulting engineer.

The Industrial Equipment Co., General Delivery, Ashland, Ky., is in the market for a used air compressor of 3000 to 3500 cu. ft. capacity, motor driven, direct connected type preferred.

## Detroit

DETROIT, June 9.

**T**HE Standard Oil Co., 1011 Fourth Street, Detroit, has awarded a general contract to Bryant & Detwiler, Dime Bank Building, for a new storage and distributing plant on Scotten Avenue, two stories, 103 x 235 ft., and a one-story building, 100 x 160 ft., estimated to cost \$140,000.

The Morse Co., General Motors Building, Detroit, William S. Morse, head, manufacturer of counterbores and other tools, has preliminary plans for enlargements in its factory at 4135 Vermont Street.

Ovens, power equipment, conveying and other machinery will be installed in the three-story plant to be erected at 934 Putnam Street, Detroit, by the Mills Baking Co., to be 118 x 210 ft., estimated to cost \$190,000 with equipment.

The F. J. Blanding Co., Lansing, Mich., local representative for the Lincoln automobile, is considering the erection of a two-story service and repair building, 66 x 110 ft., to cost \$65,000 with equipment.

The Peerless Portland Cement Co., First National Bank Building, Detroit, is asking bids on a general contract for a one-story machine shop, 49 x 182 ft., at its new mill in the River Rouge section, estimated to cost \$45,000 with equipment. Albert Kahn, Marquette Building, is architect. Construction is in progress on initial buildings at the new works. The company is disposing of a stock issue of \$3,667,000, a portion of the proceeds to be used for the new plant. William H. Hatch is president.

The Viking Pump Co., 642 Beaubien Street, Detroit, is reported to be arranging for the early purchase of equipment for its new plant at Windsor, Ont.

Murray W. Sales & Co., 315 West Jefferson Street, Detroit, plumbing equipment and supplies, engineering specialties, etc., have acquired a building and land at Flint, Mich., for a branch distributing and service works. About \$200,000 will be expended at the new plant for enlargement. Charles A. Darwin will be manager at the branch.

The United States Radiator Corporation, 127 Campbell Street, Detroit, has work under way on a three-story addition, 117 x 124 ft.

Manual training equipment will be installed in the two-story and basement junior high school to be erected at Pontiac, Mich., estimated to cost \$450,000, for which a general contract has been awarded to the Pryale Construction Co., Pontiac Commercial & Savings Bank Building. Malcomson & Higginbotham, 1219 Griswold Street, Detroit, are architects.

The Orrin Screw Co., Inc., 613 South Park Avenue, Jackson, Mich., recently incorporated to manufacture automatic screw machine products, is in the market for sheet and bar stock. George E. Schubert is secretary-treasurer.

## Indiana

INDIANAPOLIS, June 9.

**T**HE Hughes-Curry Packing Co., Anderson, Ind., meat packer, has rejected bids recently received for an addition to its plant estimated to cost \$100,000 with equipment, and will take new bids on revised plans later. It is proposed to install a refrigerating plant.

The Michigan Coin Lock Co., Indianapolis, recently organized, will operate a works at Wabash and Bird Streets for the manufacture of locks and locking devices.

Donald N. Test, the Central Motor Parts Co., 409 North Capitol Street, Indianapolis, is perfecting arrangements for the erection of a six-story and basement automobile service, repair and garage building estimated to cost \$135,000 with equipment. Bass, Knowlton & Co., Indianapolis, are architects.

The Safety Visor Co., Indianapolis, recently organized, will operate a plant at 418 Superior Street for the manufacture of automobile equipment and accessories.



Manual training equipment will be installed in the new North Side Shortridge High School to be erected at Meridian and Thirty-fourth Street, Indianapolis, estimated to cost \$1,500,000, for which bids will be asked on a general contract in about 60 days. Herbert Foltz, Wild Bank Building, is architect.

Charles A. Garrett, Garrett, Ind., has awarded a general contract to the Charles Smith Construction Co., Auburn, Ind., for a one and two-story automobile service, repair and garage building, 75 x 125 ft. and 50 x 75 ft. A. M. Strauss, Shoaff Building, Fort Wayne, Ind., is architect.

## South Atlantic States

BALTIMORE, June 9.

**P**LANS are being arranged by the Baltimore Butchers' Abattoir Co., 2600 West Franklin Street, Baltimore, for the erection of a one-story automobile service and repair building on Catherine Street, for company trucks and cars, to cost about \$65,000.

The purchasing agent, Post Office Department, Washington, will take bids until June 16, for 2275 straight shank twist drills, various sizes, 50 cast steel hand taper reamers,  $\frac{3}{8}$ -in. diameter, and 50  $\frac{3}{16}$ -in. diameter.

The Town Council, Waxhall, N. C., will take bids until June 16 for the installation of an automatic power substation, transmission line and equipment for a municipal light and power system. Percy Bloxam, Salisbury, N. C., is engineer.

The Autogenous Welding & Machine Co., 1217 Maryland Avenue, Baltimore, has awarded a general contract to the Pamflis Contracting Co., Equitable Building, for a one story top addition to present building, 84 x 98 ft., estimated to cost \$27,000. J. Kernan is president and treasurer.

The Hotel & Soda Fountain Supply Corporation, 415 Williams Street, Norfolk, Va., recently organized, contemplates the establishment of a plant for nickel plating and other metal-working. A. H. Powell is president, and E. R. Matthews, secretary.

The American Consulate, Rio de Janeiro, Brazil, has information regarding a local company which plans the construction of two sawmills and wood-working plants, for which information regarding American machinery is desired. Catalogs and letters are to be sent to the Industrial Machinery Division, Room 815, Bureau of Foreign and Domestic Commerce, Washington, marked for "transmission to the office of the Trade Commissioner, Rio de Janeiro, Brazil." Reference No. 117-4/15.

The Hackley-Morrison Co., Inc., 1708 Lewis Street, Richmond, Va., machinery dealer, has inquiries out for an electric generator, 75 to 100 kw., a.c., three phase, 60-cycle, 2300 volts, complete with rheostat, exciter, switchboard, instruments, etc.; two friction clutch pulleys, 12-in. face and 36-in. diameter; one steel or iron pulley, 24-in. face and 60-in. diameter; one flywheel for a Corliss engine, 14-ft. diameter, 24-in. face, 9-in. bore; three gyratory rock crushers; one 10-ton saddle tank locomotive, 36-in. gage; one rotary converter, 100 kw., three-phase, 60-cycle, 220-volt.

The Hartfield-Garbut Machine Co., Savannah, Ga., plans the reconstruction of two buildings at its works, recently destroyed by fire. An official estimate of loss has not been announced.

The Board of Awards, office of the City Register, City Hall, Baltimore, will take bids until June 18 for one motor-driven pumping unit, cast iron pipe, etc., for the Back River sewage treatment works. Specifications at the office of the highways engineer, room 10, City Hall. Steuart Purcell is chief engineer.

The Montieth-Soule Co., Charlotte, N. C., recently organized, has leased a building for its proposed light steel and ornamental iron works, and will install equipment at once. D. S. Montieth, 1606 Euclid Avenue, is president and treasurer.

The Commanding Officer, Edgewood Arsenal, Md., is asking bids until June 17 for 10,000 lb. gray iron castings, circular EAP-54.

The McKalg Machinery Exchange, Cumberland, Md., is in the market for an electric welding machine, stationary or portable.

The Southern Import & Export Co., P. O. Box 2163, Atlanta, Ga., is desirous of getting in contact with a company equipped to contract for the manufacture of a quantity of special pliers, pressed steel, nickel plated, or of stamped metal of suitable hardness.

A vocational department will be installed in the new junior high school to be erected in the Gwynns Park section, Baltimore, estimated to cost \$1,200,000, for which a general contract has been let to J. Henry Miller, Inc.,

Eutaw and Franklin Streets. Foundations will be laid at once. The Board of Education is in charge.

The L. E. Smott Sand & Gravel Co., 3020 K Street, N. W., Washington, plans to rebuild its machine shop, recently destroyed by fire. The plant of the W. T. Galliger & Brothers Lumber Co., Thirtieth and K Streets, adjoining, was also partially destroyed in the same fire, with gross loss of both companies estimated at \$350,000 including equipment. The Galliger company also plans to rebuild.

The Baltimore Retinning Co., 148-52 Gay Street, Baltimore, is desirous of getting in touch with a company manufacturing machinery for reconditioning and soldering used milk cans and other tin containers, with view to purchase of equipment. Arthur Benhoff is president and general manager.

The Hooker-Bassett Furniture Co., Martinsville, Va., will begin the erection of a new one-story plant, 170 by 475 ft., estimated to cost \$90,000, including electric-operated and other machinery. The company was organized recently. J. C. Hooker is president.

The Water Commission, Columbus, Ga., plans the installation of additional pumping machinery at the waterworks. W. J. Wood is chairman.

The Nokol Automatic Heating Corporation, 109 Church Street, Greensboro, N. C., recently organized as distributor of heating equipment, is in the market for distillate and iron tanks. R. G. Sloan is president.

## Gulf States

BIRMINGHAM, June 9.

**T**HE Sarasota Machine Co., Sarasota, Fla., has acquired the local plant of the J. D. Hazen Machine Works, Hog Creek section, for extensions, providing equipment for the manufacture of pumps, oil burners and kindred apparatus. James E. Weeks is president.

The W. A. Browning Machinery Co., Dallas, Tex., has awarded a general contract to H. T. Appel, Dallas, for a new one-story plant on Exposition Avenue, 50 x 300 ft., with side extension, 40 x 100 ft., estimated to cost \$37,000.

The Magnolia Petroleum Co., Magnolia Building, Dallas, Tex., is said to be contemplating the construction of a number of pumping plants in connection with a pipe line, estimated to cost \$150,000.

The Desel-Boettcher Co., Brownsville, Tex., has plans for a new cold storage and ice plant estimated to cost \$50,000 with equipment.

A power house will be installed at the three-story cotton mill to be erected by a new corporation, Fort Worth, Tex., for which a site has been secured. The entire plant will cost in excess of \$1,000,000. A machine shop will also be built. The company is headed by Charles L. Harding, president Whitman Mills, New Bedford, Mass., and Charles M. Holmes, treasurer Page Mfg. Co., of the same city. Charles T. Main, 200 Devonshire Street, Boston, is architect and engineer.

The Florida Paper Mills Co., South Jacksonville, Fla., expects to award contracts within 60 days for equipment for its proposed mill, on which work has started. A boiler plant will be installed. The entire project will cost close to \$400,000 including machinery. Gilbert D. Leach, Leesburg, Fla., is secretary.

Stone & Webster, Inc., El Paso, Tex., and 147 Milk Street, Boston, has taken over the Las Cruces Electric Light & Ice Co., Las Cruces, N. M., recently acquired. A fund of \$150,000 is being arranged for extensions during the year, while \$500,000 will be spent for expansion over a period of 36 to 48 months. Alba H. Warren is general manager of the purchasing company at El Paso.

Manual training equipment will be installed in the one and two-story junior high school to be erected on Shook Avenue, San Antonio, Tex., estimated to cost \$175,000, for which bids will be asked soon on a general contract. Phelps & DeWees, Gunter Building, are architects.

Plans have been filed by the Houston Textile Mills, Inc., Houston, Tex., for a one-story steam power plant at its proposed new mill. The entire plant will cost about \$500,000. J. E. Sirrine & Co., Greenville, S. C., are engineers.

The American Paper Stock Co., 1210 Marilla Street, Dallas, Tex., will soon ask bids for a two-story works, 90 x 140 ft., estimated to cost \$100,000 with equipment. It will replace a building destroyed by fire several weeks ago. H. A. Overbeck, Melba Theater Building, is architect.

George J. Ott, city manager, New Smyrna, Fla., is planning to purchase equipment for the municipal electric power plant, including one 600 and one 800-hp. oil-burning engines; one electric generator for each engine; pumping equipment and accessory apparatus; switchboard and miscellaneous equipment.

J. M. Land, El Paso, Tex., engineer, and associates, have tentative plans for the erection of an electric light and power house at Estancia, N. M. The Estancia Creamery Co. is said to be interested in the project. The company has begun the construction of an ice-manufacturing plant to cost about \$30,000 under the direction of Mr. Land.

The Mobile Paper Mills, Inc., Mobile, Ala., will build a one-story steam-operated power house at its new plant at Crichton, near Mobile, now in course of erection. The entire mill will cost \$400,000 with equipment. J. M. Walsh is president.

The National Steel Barrel Co., 1500 Tochupitoulas Street, New Orleans, is contemplating the erection of a new plant at Washington Avenue and South Rendon Street, totaling about 22,000 sq. ft. of floor space. S. H. McAllister is division manager.

The Alabama Power Co., Birmingham, has tentative plans for the erection of a new equipment distributing and storage plant on local site, estimated to cost \$100,000 with material-handling and other machinery.

## Canada

TORONTO, June 9.

IMPROVED conditions are a feature of the machine tool market in this territory. Manufacturing interests are showing more confidence in the future and are buying to replace worn out or obsolete tools. The demand, however, is confined mostly to lots of two or three to a purchaser. While orders booked during May show improvement over any month this year builders and dealers are of the opinion that June will be another record month. Sales are not confined to any one line, but are spread over practically every producing industry.

Several large pulp and paper plants have been started or are to be erected in the Dominion this year for which large sums of money will be spent on machinery. The Thunder Bay Paper Co., Port Arthur, Ont., which will double the capacity of its plant has placed an order with the Port Arthur Shipbuilding Co., for \$50,000 worth of pulp mill machinery, which will be manufactured in Port Arthur.

The Carthage Machine Co., Carthage, N. Y., maker of pulp and paper mill machinery, will establish a branch factory at Belleville, Ont., where it has purchased the plant and property of the J. C. Wilson Mfg. Co., Ltd. The Carthage Machine Co. of Canada, Ltd., has been formed as a subsidiary of the New York company. F. S. Wilson, president and principal stockholder in the J. C. Wilson Mfg. Co., has been appointed vice-president and general manager of the Canadian company. A. K. Hinds, general manager of the parent company is president and A. E. Wardell, secretary-treasurer.

Babcock-Wilcox & Goldie-McCulloch, Ltd., Galt, Ont., is inquiring for a second-hand, direct current 150 hp., 350 r.p.m., compound wound, 250 volt motor.

S. T. Hinten, Huntsville, Ont., is in the market for equipment for building boats.

The Great Lakes Paper Co., Fort William, Ont., will start work immediately on the erection of a paper mill.

The International Paper Co., New York, is having plans prepared for addition to mill at Batiscan, Three Rivers, Que.

Bids are being received by the secretary of the town of Beauharnois, Que., for centrifugal pump with gasoline engine and other equipment for a waterworks plant. Plans are with A. Plamondon, engineer, 70 St. James Street, Montreal.

The Ottawa Electric Co., Ottawa, Ont., has started work on the erection of a repair shop and car barn on Champagne Avenue, which is expected to be completed by Oct. 1. It will be of brick and steel, 200 x 300 ft. and will cost \$200,000. John Sutherland is general contractor.

The Canadian General Electric Co., Peterboro, Ont., has awarded the general contract for an addition to its plant to the McLeod Construction Co., Toronto. It will be 85 x 160 ft., four-stories, and the cost, inclusive of equipment, is estimated at between \$300,000 and \$400,000.

The Hull Electric Co., Ltd., Hull, Que., is having plans prepared for a \$10,000,000 power development plant on the Gatineau River, at Pagan Falls, Que. Walter J. Francis, 260 St. James Street, Montreal, is engineer in charge.

The Temiskaming & Northern Ontario Railway Commission has awarded the general contract to Stuart & Sinclair, Hamilton, Ont., for the erection of an engine house at North Bay, Ont., to cost \$75,000.

## Western Canada

Plans for the first unit of the city's central machine shop to be erected on Cambia Street, Vancouver, B. C., are nearing completion and it is expected that construction will start without delay. The first unit will cost \$18,000.

## Pacific Coast

SAN FRANCISCO, June 4.

THE Illinois Wire & Cable Co., Sycamore, Ill., has awarded a general contract to Davison & Nicolson, 31 South Sutter Street, Stockton, Cal., for six one-story buildings on Eightieth Avenue, Oakland, Cal., forming the initial units of its proposed branch plant.

The Engels Copper Mining Co., Mills Building, San Francisco, Cal., has disposed of a bond issue of \$500,000, practically the entire proceeds to be used for extensions and improvements in its plant in Plumas County, including the installation of additional equipment. E. E. Paxton is general manager.

The Lake Irrigation District, McCall, Idaho, plans the installation of electric-operated pumping equipment in connection with a proposed irrigation project estimated to cost \$120,000.

The Los Angeles Railway Co., Pacific Electric Building, Los Angeles, has plans for a one-story automatic power station, 50 x 57 ft. The engineering department is in charge.

The Union Oil Co. of California, Seattle, Wash., has filed plans for a one-story machine shop to cost \$18,000, and one-story steam power house.

The Municipal Power Department, Seattle, Wash., is considering the erection of a distributing works and storage building at Fourth Avenue, South, and Spokane Street, two-stories, 230 x 360 ft., for light equipment and repairs, estimated to cost \$250,000 including material-handling and shop apparatus.

The Richfield Oil Co., Bakersfield, Cal., has plans in preparation for rebuilding the portion of its oil refinery, recently destroyed by fire with loss estimated at \$250,000 including equipment. A. M. Kelley is district manager.

The Pacific Pump Works, Hunting Park, Cal., has awarded contract to the Union Iron Works, Los Angeles, for a one-story building, 58 x 125 ft., for which foundations will be laid at once.

The Electric Steel Foundry Co., Twenty-fourth and York Streets, Portland, Ore., is considering the erection of a new one-story foundry, 50 x 160 ft.

The Keaton Tire & Rubber Co., San Francisco, is reported to be considering the erection of a new plant in the vicinity of Burlingame, Cal., estimated to cost \$100,000.

The Mohawk Valley Irrigation District, Yuma, Ariz., plans the installation of a series of electric-operated pumping plants in connection with a proposed irrigation project to cost approximately \$750,000. L. A. Macy and J. L. Terry are heads.

Plans are progressing for the reorganization of the Atlas Crucible Steel Co., it is said. Receivers and creditors have outlined a tentative plan for the incorporation of the Dunkirk, N. Y., concern with outside companies and new capital will be available to carry out the program, it is believed. About 75 per cent of the creditors have ratified the new plan. The reorganization does not affect the Charleroi and Welland properties and only the Dunkirk plant will be included in the deal. The major officers perhaps will be selected from the Atlas company.

The Northwest Engineering Co. has appointed the George B. Curd Equipment Co., Cincinnati, with district offices in Lexington, Ky., and Indianapolis, as representative in that territory for its gasoline convertible cranes, draglines and shovels.

A report dated March 31, filed by the Spencer Wire Co., a subsidiary of the Wickwire Spencer Steel Corporation, with the Massachusetts commissioner of corporations, gives total assets and liabilities as \$3,439,885, which compares with \$3,406,431 at the close of the previous year. Surplus account stands at \$1,428,385, whereas on March 31, 1923, it was \$1,406,431.

Total assets and liabilities of the Morse Twist Drill & Machine Co., New Bedford, Mass., on Feb. 29, last, were \$4,009,288; at the close of the previous year they were \$4,058,428. Inventories, materials, merchandise and stock in process of manufacture stand at \$1,515,502, or approximately \$100,000 less than in 1922.



## STEEL AND INDUSTRIAL STOCKS

The range of prices in active steel and industrial stocks from Monday of last week to Monday of this week was as follows:

	Low	High		Low	High
Allis-Chalmers ..	42 3/4	45 1/2	Int. Har. ....	84 1/4	85
Allis-Chal. pf. ....	91	91	Int. Har. pf. ....	108 3/4	108 3/4
Am. B. S. & Fdy. ....	81 1/2	82	Jones & L'hlin pf. ....	110 3/4	110 3/4
Am. Can. ....	102 1/2	105 1/2	Lima Loco. ....	56 1/2	57 1/2
Am. Can. pf. ....	114 1/2	115	Nat. En. & Stm. ....	22 1/2	24 1/2
Am. Car & Fdy. ....	156	160	Nat. En. & S. pf. ....	79 3/4	80
Am. C. & F. pf. ....	121 3/4	122	N. Y. Air Brake ....	39	40
Am. Locomotive. ....	71	73	Otis Steel ....	7 1/2	7 3/4
Am. Loco. pf. ....	118 1/2	118 1/2	Otis Steel pf. ....	54	54
Am. Radiator ....	98	100	Pressed Steel Car ....	45 1/2	47
Am. Radiator pf. ....	125	125	Pressed Steel pf. ....	80 1/2	80 1/2
Am. Steel Fdries. ....	34	34 3/4	Repligle Steel ....	7 3/4	8
Am. Stl. Fd. pf. ....	102 1/2	103	Republic ....	43	44 3/4
Bald. Loco. ....	106	112 3/4	Republic pf. ....	85 1/2	85 1/2
Bald. Loco. pf. ....	115	115	Sloss-Sheffield ....	52 1/2	56
Beth. Steel ....	45 1/4	49	Steel of Canada. ....	71	72
Br. Em. Stl. 2 pf. ....	9 3/4	10	Superior Steel ....	26 3/4	26 3/4
Chic. Pneu. Tool ....	85	86	Un. Alloy Steel ....	25	25 1/4
Colo. Fuel ....	38 3/4	41 1/2	U. S. Pipe ....	85 3/4	91
Crucible Steel ....	48 3/4	52 3/4	U. S. Pipe pf. ....	91	91
Crucible Stl. pf. ....	88 1/2	89 3/4	U. S. Steel ....	94 1/4	97 3/4
Deere pf. ....	61	62	U. S. Steel pf. ....	119 1/4	119 3/4
Gen. Electric ....	216	222 1/2	Vanadium Steel. ....	20	22 1/4
Gt. No. Ore Cert. ....	26	26 3/4	Va. L. C. & C. pf. ....	78	78
Gulf States Steel ....	63 1/4	67 3/4	Whouse Air Br. ....	88 3/4	88 3/4
Inland Steel ....	32 1/2	33	Y'getown S. & T. ....	63	64

## Plans of New Companies

Electrolytic Iron, Inc., recently incorporated with \$500,000 capital stock, Delaware laws, plans to manufacture iron by the electrolytic process. Matters with which the company may deal are still under negotiation, hence no specific plans have been drawn for operations. Theodore L. Frothingham, 160 Broadway, is secretary.

The Slemund Marine Electric Welding Co., 29 Broadway, New York, has been incorporated with \$600,000 capital stock to continue the operations of a business which has been established for some time in the repair of steamships. The company will proceed as formerly under the same management. Henry L. Slemund heads the company.

Re-Vi-Vo, 40-46 West Twentieth Street, New York, has been incorporated with \$50,000 capital stock and will manufacture electric machinery and apparatus. It has leased 15,000 sq. ft. of floor space and is making arrangements to install machinery. The incorporators are H. J. Cohen and B. Bunderoff.

The S. S. Tool Co., 153-55 West Fifty-fourth Street, has been incorporated with capital stock of \$15,000 to manufacture an improved automotive device. The company now has a small shop and will have manufacturing done by contract. J. T. Nolan, V. F. Brown and M. L. Kelleher are the incorporators.

The Edison Gas Range Co., 107 East Thirty-first Street, New York, incorporated with capital stock of \$50,000, will manufacture gas stoves, stove castings, etc. Its plans are still in the preliminary stages but will be formulated by the end of this month. E. H. Kerner and G. W. Maurer are the incorporators.

Brandis & Co., Inc., Brooklyn, has been organized to renew the business of Brandis & Sons, formerly devoted to the manufacture of precision instruments. Charles H. Colvin and associates have purchased the defunct business through equity receivership and will continue operations in the plant at 754 Lexington Avenue. The company is now at work on two Government contracts. William F. Brandis is president; Henry Brandis, vice-president and Mr. Colvin, treasurer.

The Four-In-One Jack Corporation, New York, has been incorporated with \$200,000 capital stock to manufacture automobile jacks and hardware products. It is still in the preliminary stages but will take up operating plans as soon as organization matters are completed. Temporary address is in care of A. D. Schanzer, 15 Park Row.

A. Wohl & Co., Inc., Brooklyn, organized with capital stock of \$200,000, has taken over the business of A. Wohl at Thirty-seventh Street and Fourteenth Avenue and will continue in the manufacture of plumbers' supplies.

The G. & M. Iron Works, 511 Flushing Avenue, Brooklyn, has been incorporated with nominal capital to operate a general iron works. Its operations will be conducted on a small scale. W. Miller and R. Rosenblatt are the incorporators.

The Hardware Equipment Corporation, New York, incorporated with \$100,000 capital stock, plans to manufacture hardware products and other iron and steel specialties. Its plans are in the hands of Lloyd Turnis, 337 Ine Street, Elizabeth, N. J.

The Hercules Tank & Filter Mfg. Co., 21 Cleveland Place, New York, recently organized with nominal capital,

will manufacture metal goods on a small scale. M. Sciarra and C. DiCarlo are the incorporators.

The Associated Bodies Corporation, New York, recently organized with \$1,000,000 capital stock to manufacture automotive products, will have an initial plant near Louisville, Ky., where arrangements are being made to purchase a commercial body works with a capacity of 100 bodies and buses per day. Enlargements are now being planned and equipment will be installed later. F. W. Hohensee, vice-president Durant Motors, Inc., 1819 Broadway, New York, heads the company.

The E. E. Hardy Roller Skate Mfg. Corporation, organized with \$100,000 capital stock, will specialize in the manufacture of roller skates and related products. The company plans to lease a plant and install equipment as soon as a convenient location is found. E. E. Hardy, president of the company, may be reached in care of the Shakun Industrial Co., 154 Nassau Street, New York.

The Beach Electric Co., 148 Academy Street, Newark, N. J., has been organized with \$125,000 capital stock to operate as electrical contractor.

The Ratel Safety Light Corporation, 364 South Broad Street, Elizabeth, N. J., has been organized with \$500,000 capital stock under Delaware laws to manufacture lighting devices for automobiles. If present plans carry, manufacturing will be done by contract. Dies are now being designed. No awards have been made as yet. Joseph A. Ratel is president.

The National Gas Register Pump Co., 914-15 Wiss Building, Newark, N. J., has been incorporated with \$1,500,000 capital stock to manufacture liquid measuring pumps. Manufacturing is being done by a Newark concern, which later will be consolidated with the National company. The latter will take over the assets of the manufacturing company, amounting to about \$400,000, and will manufacture entirely in Newark. It will be in the market for materials and equipment. H. C. Long is president.

The Daven Radio Co., 9-11-13 Campbell Street, Newark, N. J., recently organized with \$100,000 capital stock, will take over the business of a company which has been established three years in the manufacture of radio equipment. Operations will be continued along the same lines. William H. Frasse is president.

Sommers Brothers Appliance Co. has been organized with \$200,000 capital stock to take over the partnership of the American Home Appliance Mfg. Co., Saginaw, Mich. The new company will manufacture washing machines and plans to make all parts except motor, rolls and belts. It plans to be in production by fall. Frank F. Sommers is president.

Reynolds Implement Co., Helena, Ark., has been organized with \$40,000 capital stock to manufacture agricultural implements and tools. Manufacturing will be done by contract for the present. G. L. Davidson is one of the principals.

The Ace Products Corporation, Box 38, New Haven, Conn., incorporated with \$50,000 capital stock, will manufacture windshield cleaners. It plans to add other automotive accessories to its line from time to time. S. E. LaVieta is president.

The Powell Brass Co., Union Avenue and Pere Marquette R. R., Grand Rapids, Mich., has been organized with \$50,000 capital stock and will manufacture plumbing goods and automotive accessories. It has a plant and is installing additional equipment. F. W. Elson is secretary-treasurer.

The Husky Wrench Co., 928 Sixteenth Avenue, Milwaukee, has been incorporated with \$50,000 capital stock to manufacture automotive and industrial wrenches, especially socket wrenches of the interchangeable type. Officers of the company are: Joseph O. Wirtish, president; John G. Zummach, secretary-treasurer; Siegmund Mandl, vice-president and chief engineer.

## Industrial News Items

The General Electric Co., Schenectady, N. Y., which now owns approximately one-third of the stock of the Hurley Machine Co., Chicago, is negotiating to gain control of the latter organization.

Samuel E. Duff, Magee Building, Pittsburgh, receiver of the Phoenix Iron Works Co., Meadville, Pa., will offer at public sale the property of that company comprising a foundry, machine shop and a structural fabricating shop on Wednesday afternoon, June 25. The sale is to be held on the company's premises.

Fairbanks-Morse & Co., Boston, have leased from the Everett Factories Corporation, 210 Broadway, Everett, Mass., warehouse space on the Boston & Albany Railroad.

Canadian-Wirebound Boxes, Ltd., has moved into its new plant at 3675 Notre Dame Street, East, Montreal.

# Current Metal Prices

On Small Lots, Delivered from Merchants' Stocks, New York City

The following quotations are made by New York City warehouses.

As there are many consumers whose requirements are not sufficiently heavy to warrant their placing orders with manufacturers for shipments in carload lots from mills, these prices are given for their convenience.

On a number of items the base price only is given, it being impossible to name every size.

The wholesale prices at which large lots are sold by manufacturers for direct shipment from mills are given in the market reports appearing in a preceding part of THE IRON AGE under the general heading of "Iron and Steel Markets" and "Non-Ferrous Metals."

## Bars, Shapes and Plates

Bars:	Per Lb.
Refined iron bars, base price.....	3.49c.
Swedish charcoal iron bars, base.....	7.00c.
Soft steel bars, base price.....	3.49c.
Hoops, base price.....	4.59c.
Bands, base price.....	4.09c.
Beams and channels, angles and tees, 3 in. x ¼ in. and larger, base.....	3.59c.
Channels, angles and tees under 3 in. x ¼ in., base.....	3.49c.
Steel plates, ¼ in. and heavier.....	3.59c.

## Merchant Steel

	Per Lb.
Tire, 1½ x ½ in. and larger.....	3.55c.
(Smooth finish, 1 to 2½ x ¼ in. and larger)...	4.05c.
Toe-calk, ½ x ½ in. and larger.....	4.50c.
Cold-rolled strip, soft and quarter hard..	7.50c. to 8.50c.
Open-hearth, spring steel.....	4.50c. to 7.00c.
Shafting and Screw Stock:	
Rounds.....	4.40c.
Square, flats and hex.....	4.90c.
Standard tool steel, base price.....	15.00c.
Extra tool steel.....	18.00c.
Special tool steel.....	23.00c.
High-speed steel, 18 per cent tungsten.....	70c.

## Sheets

Blue Annealed	Per Lb.
No. 10.....	4.14c.
No. 12.....	4.19c.
No. 14.....	4.24c.
No. 16.....	4.34c.

## Box Annealed—Black

	Soft Steel C. R. One Pass Per Lb.	Blued Stove Pipe Sheet Per Lb.
Nos. 18 to 20.....	4.55c. to 4.70c.	.....
Nos. 22 and 24.....	4.70c. to 4.85c.	5.10c.
No. 26.....	4.75c. to 4.90c.	5.15c.
No. 28*.....	4.85c. to 5.00c.	5.25c.
No. 30.....	5.05c. to 5.20c.	.....

## Galvanized

	Per Lb.
No. 14.....	4.95c. to 5.10c.
No. 16.....	5.10c. to 5.25c.
Nos. 18 and 20.....	5.25c. to 5.40c.
Nos. 22 and 24.....	5.40c. to 5.55c.
No. 26.....	5.55c. to 5.70c.
No. 28*.....	5.85c. to 6.00c.
No. 30.....	6.35c. to 6.50c.

\*No. 28 and lighter, 36 in. wide, 20c. higher.

## Welded Pipe

Standard Steel		Wrought Iron	
Black	Galv.	Black	Galv.
½ in. Butt... —41	—24	½ in. Butt... —4	+19
¾ in. Butt... —46	—32	¾ in. Butt... —11	+9
1-3 in. Butt... —48	—34	1-1½ in. Butt... —14	+6
2½-6 in. Lap... —44	—30	2 in. Lap... —5	+14
7-8 in. Lap... —41	—11	2½-6 in. Lap... —9	+9
9-12 in. Lap... —34	—6	7-12 in. Lap... —3	+16

## Bolts and Screws

Machine bolts, cut thread, 45 and 10 to 45, 10 and 10 per cent off list
Carriage bolts, cut thread, 35 and 10 to 35, 10 and 10 per cent off list
Coach screws, 45 and 10 to 45, 10 and 10 per cent off list
Wood screws, flat head iron, 75, 20 and 10 per cent off list

## Steel Wire

BASE PRICE* ON NO. 9 GAGE AND COARSER	Per Lb.
Bright, basic.....	4.25c. to 4.50c.
Annealed soft.....	4.50c. to 4.75c.
Galvanized annealed.....	5.15c. to 5.40c.
Coppered basic.....	5.15c. to 5.40c.
Tinned soft Bessemer.....	6.15c. to 6.40c.

\*Regular extras for lighter gage.

## Brass Sheet, Rod, Tube and Wire

### BASE PRICE

High brass sheet.....	16½c. to 17½c.
High brass wire.....	17½c. to 18½c.
Brass rods.....	14½c. to 15½c.
Brass tube, brazed.....	24½c. to 25½c.
Brass tube, seamless.....	21 c. to 22 c.
Copper tube, seamless.....	22½c. to 23½c.

## Copper Sheets

Sheet copper, hot rolled, 20½c. to 20½c. per lb. base.
Cold rolled, 14 oz. and heavier, 3c. per lb. advance over hot rolled.

## Tin Plates

Bright Tin	Grade "AAA" Charcoal 14x20	Grade "A" Charcoal 14x20	Coke—14 x 20	Prime	Seconds
			80 lb..	\$6.55	\$6.30
			90 lb..	6.65	6.40
			100 lb..	6.75	6.50
IC..	\$11.75	\$9.50	IC..	7.00	6.75
IX..	13.25	11.50	IX..	8.25	8.00
IXX..	14.50	12.50	IXX..	9.50	9.25
IXXX..	15.50	13.75	IXXX..	10.75	10.50
IXXXX..	16.50	14.75	IXXXX..	12.00	10.75

## Terne Plates

8 lb. coating, 14 x 20	
100 lb.....	\$7.00 to \$8.00
IC .....	7.25 to 8.25
IX .....	8.25 to 8.75
Fire door stock.....	9.00 to 10.00

## Tin

Straits, pig.....	46c.
Bar .....	48c. to 53c.

## Copper

Lake ingot.....	16 c.
Electrolytic .....	15½c.
Casting .....	14½c.

## Spelter and Sheet Zinc

Western Spelter .....	7½c.
Sheet zinc, No. 9 base, casks.....	10½c. open 11½c.

## Lead and Solder\*

American pig lead .....	8½c. to 9c.
Bar lead .....	11c. to 12c.
Solder, ½ and ½ guaranteed .....	32c.
No. 1 solder .....	30c.
Refined solder .....	26c.

\*Prices of solder indicated by private brand vary according to composition.

## Babbitt Metal

Best grade, per lb.....	75c. to 90c.
Commercial grade, per lb.....	35c. to 50c.
Grade D, per lb.....	25c. to 35c.

## Antimony

Asiatic .....	11c. to 11½c.
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## Aluminum

No. 1 aluminum (guaranteed over 99 per cent pure), in ingots for remelting, per lb.....	36c.
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## Old Metals

The market continues uncertain. Dealers' buying prices are as follows:

	Cents Per Lb.
Copper, heavy crucible .....	10.75
Copper, heavy wire .....	10.50
Copper, light bottoms .....	8.75
Brass, heavy .....	6.25
Brass, light .....	5.00
Heavy machine composition .....	8.00
No. 1 yellow brass turnings.....	6.50
No. 1 red brass or composition turnings.....	7.75
Lead, heavy .....	5.75
Lead, tea .....	4.25
Zinc .....	3.50
Cast aluminum .....	14.50
Sheet aluminum .....	14.50